Interreg
Danube Transnational Programme
Amazon of Europe Bike Trail

AMAZON OF EUROPE BIKE TRAIL

Output 7.1: Roadmap for replication, territorial uptake and digitalisation

Project co-funded by the European Union funds (ERDF, IPA)
DTP2-002-2.2 AOE BIKE TRAIL

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Project	**AoE Bike Trail, DTP2-002-2.2**
Work package	**WP7: Transfer and replication**
Output	**Output 7.1: Roadmap for replication, territorial uptake and digitalisation**
Authors	**Luka Tomat, Urška Dolinar, Ádám Bolyós, Máté Deák, Tibor Polgár**
Institution	**Luka Tomat, sp. Iskriva, Institute for Development of Local Potentials, Westpannon Nonprofit Ltd.**
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Abstract

The „Roadmap for replication, territorial uptake and digitalization" document was elaborated in the framework of the Amazon of Europe Bike Trail project, work package 7 (WPT5) called Transfer and replication.

The structure of the document is simple. As a first step, an overview of the Amazon of Europe Bike Trail project was elaborated (Chapter 1), which is a summary of the methodologies regarding all thematic work packages – in order to capitalize the knowledge and experiences in a logical frame. This is a complementary description about the Amazon of Europe Bike Trail development model – but of course it is not mean that there is no room for improvement.

Therefore, an internal evaluation process was implemented (Chapter 2) within the partnership about each thematic work packages, mainly about its effectiveness and quality – this is a perfect tool to identify the positive and negative processes within the project Amazon of Europe Bike Trail.

Additionally, to analysing the potentials of the Danube region for transferability and replicability, a collection of projects was prepared (Chapter 3) in order to find synergies, collaboration opportunities with other projects which were supported by the Danube Transnational Programme and know more about the results of the selected projects.

Besides this, three short socio-economic analysis were elaborated (Chapter 4) for three transnational DTP regions, where – based on the previous chapters – there is a potential to use the development model of the Amazon of Europe Bike Trail. The description about the three areas contains the basic statistical background of each region, the most frequented tourism hotspots and most popular sights, the most relevant nature protected areas – in NUTS 3 level. The aim of this chapter was to identify those areas within the Danube Transnational Programme area (which have more or less the same socio-economic background as the area of the Amazon of Europe has and facing most likely the same demographic and economic challenges) where the Amazon of Europe Bike Trail model can be transferred with slight modifications according to the local needs.

Last but not least, the last chapter of the document (Chapter 5) is focusing on the innovative ways of route digitalization. The "power of information" is very important in the field of active tourism, especially nowadays in the age of digitalization. It is obvious: if a bike route is digitalized in a detailed way (where almost every information is available immediately), it is in a better position on the tourism market, and also makes easier the maintenance of the trail. Therefore, some good practices were presented within this chapter, and a short description how to improve the digitalized content of the Amazon of Europe Bike Trail (especially more information about the route itself, like the quality of the surface, type of the road etc.), why would it be important and useful.

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1 Amazon of Europe Bike Trail – concept and model

1.1 Description of the concept behind the project

The Amazon of Europe area represents the largest natural river system in Central Europe. Amazing river landscapes along Mura, Drava and Danube was protected as the world´s first 5-country biosphere reserve. Under UNESCO protection within the Man and the Biosphere programme, biosphere reserves are model regions where nature conservation goes hand in hand with sustainable regional development. However, despite over 20 years of efforts in protecting the area, the 11 border regions of AT, SI, HR, HU and SR are underdeveloped, facing loss of jobs and emigration.

The Amazon of Europe Bike Trail project connects 15 project partners and 10 associated partners in developing a model for sustainable mobility and unique tourism product along the future five-country UNESCO Biosphere Reserve “Mura-Drava-Danube”. Amazon of Europe Bike Trail is a project joining the efforts of 5 countries for sustainable economic development of the region based on valorisation of natural and cultural resources. The concept is based on a joint integrated solution for sustainable biking tourism in the Amazon of Europe while preserving the environment.

Apart from developing a tourism product, the project enhances cooperation between regions and protected areas within the planned transboundary biosphere reserve, contributing to its overall success. The Amazon of Europe Bike Trail project also serves as a platform for sustainable development of areas within the protected zones, establishing the Mura-Drava-Danube region as a five-country sustainable ecotourism macro-destination. Once established, the trail will generate new jobs and create new transboundary connections, establishing a way to support projects that deal with regional development and nature protection in the area.

To develop the Amazon of Europe Bike Trail as an advanced flagship for a sustainable product and a unique brand, the project strives to establish the organisational system, resulting in a joint bookable product with a clear and unique selling proposition for incredible riverine landscapes. Based on nature-oriented visitor guidance, existing cycling routes will be connected and equipped with corresponding infrastructure (resting areas, info boards and info points), resulting in approximately 1.250 km of joint bike trails along both banks of the Mura, Drava and Danube within the planned transboundary biosphere reserve. The essential innovative aspect is the valorisation concept, defining how the share of booking revenues will finance protected areas, resulting in fair distribution of benefits between the locals, visitors and nature. Thus, the project implements the joint vision of living rivers for people and nature and establish the Amazon of Europe as a top destination in Europe for sustainable eco-tourism.

Aside from cyclists, the Amazon of Europe Bike Trail is open to all visitors and offers spectacular natural landscapes and possibilities for various leisure activities making it a great destination for all nature lovers.

The project focused on assuring sustainable use of incredible natural resources, and also link them to considerable cultural heritage in the Amazon of Europe area. The key challenge was to balance economic growth and nature conservation efforts. The corresponding overall objective was to enhance regional development and economic growth of the Amazon of Europe based on integrated sustainable management of natural and cultural heritage and resources and the capacities of the local people, thus significantly contributing to the environment and culture responsible Danube region. This was achieved by developing and implementing a joint and integrated solution for sustainable biking tourism in TBR MDD.

The first objective was to boost regional economy by developing and implementing Amazon of Europe Bike Trail as a flagship sustainable tourism product for biking in this unique part of Europe, resulting in the MDD as a top destination in Europe for sustainable eco-tourism. The AoE Bike Trail now represents a strong joint brand incorporate existing service providers under high quality standards. Strong marketing and promotion from local to international level attracts high-end visitors which appreciate the added value of spending their time in such special environment. Besides, project created green jobs for the locals, thus realising green growth objectives in a practical manner.

The second objective was to improve skills and knowledge of target groups in the wide spectrum of sustainable tourism. Hence, many trainings and workshops have been implemented, from international workshops with sectoral agencies, business support organisations and protected areas regarding planning the nature-oriented Bike Trail to practical workshops and trainings for service providers (SMEs and NGOs) in relevant hospitality aspects.

The third objective was to ensure valorisation of protected areas through sustainable tourism in AoE. By developing a valorisation programme for protected areas (WP6) the project assured that a share of the planned income from booking fees would be returned to the preservation of the unique nature in TBR MDD, the basis for sustainable tourism in this region. With such programme, long term cooperation between protected areas, NGOs and with other organisations in the AoE is also ensured.

With the proposed approach, the project brings to life the joint vision of the Amazon of Europe living rivers for people and nature, which unites the locals from 5 countries to provide joint services for nature lovers visiting from all over Europe, resulting in long-term sustainable development of the area and fully functional TBR MDD.

1.2 Short summary about the implementation of the framework of the AoE Bike Trail project

The project was split into 7 work packages. The methodology was carefully selected to develop tools and learning interactions for sustainable valorisation of natural heritage while enabling economic growth and protecting the sensitive habitats.

To boost regional economy, the project first developed a joint solution for sustainable tourism in the Amazon of Europe, starting with developing a joint AoE Bike Trail product in WP3. Based

on socio-economic analysis of the potentials in the area and considering tourism trends, including EUSDR analyses, the project developed the characteristics of the Bike Trail product, accompanied with relevant services (e.g. nature guided tours, visits of cultural heritage sites). Thus, the project defined the organisational structure for managing the product, the booking and information system, and guidelines for applying the approach in 5 countries. Innovative methods have been applied and adapted to the specific 5-country situation.

Next, WP4 focused on nature-oriented trail development. Based on the up-to-date trends in visitor management for protected areas, the project developed joint trail implementation standards, nature oriented guidance and mapping, which was carefully considered for specific riverine landscapers and habitats. Guidance was shared with target groups at regional workshops.

Results of both WPs have been applied in WP5 where the 1000 km of the AoE Bike Trail was implemented along Mura, Drava and Danube. Regional coordinators in 11 regions equipped the trail with jointly branded infrastructure, including resting points, signposts and info boards presenting the TBR MDD and the Bike Trail. This is the first joint 5-country bookable biking product in Europe according to our knowledge, situated in the most preserved wetlands and river habitats in Central Europe. For providing high quality standard services, in the last activity of WP5 the project established the Amazon of Europe Bike Trail Academy, developed and implemented the innovative curriculum for training the future booking centres and service providers along the trail.

Finally, in WP6 the project developed a valorisation programme for protected areas, taking into consideration EUSDR PA6 work. In cooperation with 12 protected areas of the AoE and nature oriented NGOs, the project prepared framework and criteria defining how share of revenues from Bike Trail booking fees will be returned to finance the protected areas.

The objective of WP7 was to strengthen the grounds for transfer and replication of the project outputs with a focus on digitalization, integration and networking, which further upgraded developed concepts in other WPs and widen the multiplicative effects to the wider TBR MDD area, as well as the DTP area. It aims to expand the reach and attraction of AoE destination and AoE Bike Trail for its future development. This WP connects the existing outputs with identification of key elements for transferability and replicability, provision of specific quality assurance directions, digital marketing strategy development to assure a strong basis for attracting tourists and organization of the inauguration event for further target groups compared to the original project.

Thematic activities have been strongly supported by joint management (WP1), communication and promotional activities (WP2). We have adapted up-to-date knowledge and methodologies to the specific advantages of the Amazon of Europe, which results in innovatively developed conditions for sustainable biking tourism in the planned first 5-country biosphere reserve MDD.

1.3 Main achievements and the future of the Bike Trail

1.3.1 Main achievements

Main achievements in the terms of outputs are presented in the following table. Anyhow, the achievements resulting from WP7 are still in the preparation phase and are thus not considered in this document.

Table 1: Main achievements of the project

Main achievements	
T1.1 Socio-economic analysis of tourism potentials	The socio-economic assessment will analyse the social, cultural and economic conditions of communities and regions in the Amazon of Europe. It will include market analysis and SWOT analysis of existing service providers in the area, as well as overview of implemented and on-going projects, local or regional brands, facilities and services of protected areas etc., which are relevant for developing sustainable tourism products, contributing to objectives 1 and 2.
T1.2 Bike Trail international organisational structure	International organisational structure for the Amazon of Europe Bike Trail, aimed at ensuring a sustainable and durable trail-management, will define responsibilities, rights and obligations of the partner organisations included in the bike trail management, and link to the valorisation concept. It will also define work-flows, decision making and business model approach for a network of professional regional booking centres and service providers. Contributes to objectives 1 and 2.
T1.3 Guide and workshops for regional trail management	Guidelines for regional trail management will ensure a sustainable and durable management of the Amazon of Europe Bike Trail and enable a full-scale transformation of the WP3 results into WP5 and 6. Guidelines, shared with PPs at 3 capacity building workshops, will precise instructions on how to support professional implementation of all requirements for defined trail management in all regions along the trail, from organisation to booking. Output contributes to objectives 1 and 2.
T1.4 AoE Bike Trail strategic marketing plan	The strategic marketing plan will define market analysis and market opportunities, marketing objectives, target groups and users of the Bike Trail, based on the approved Sinus Milieus model, target markets, branding and visual identity guidelines for marketing of the Bike Trail, for service providers and other stakeholders of the AoE Bike Trail, communication objectives, communication channels and marketing budget.
T1.5 Promotion and booking on-line and mobile platform	Bike Trail promotion and booking on-line platform will be the user interface website for presenting the AoE Bike Trail and for further use in the booking process, targeted for the nature lovers that will book the trail package with a variety of choices. Additionally, we will develop a mobile application with the integrated on-line booking system for the bike trail, as well as for users on the trail with GIS track and service facilities.
T2.1 Nature oriented visitor guidance and mapping	Guidance contains: - a visitor guidance concept for biking for the whole AoE area, - a map with basic data to be used in Act. 2.3 for the bike trail route map, - a GIS database with information on bike visitor guidance and relevant data concerning the bike trail. The guidance ensures that the bike trail is implemented in harmony with nature and the nature protection goals of the

	area. As a result, a harmonized trail across the 5 countries is implemented, contributing to objectives 1, 2 and 3.
T2.2 Training on nature oriented bike visitor concept	Training for target groups (organisations supporting regional development, protected areas) will be implemented to educate them about the standards and nature oriented bike visitor concept, therefore it represents a documented learning interaction. Training workshops will be organised by regional coordinators to increase capacities of target groups in sustainable tourism by valorising natural and cultural heritage, and assuring proper visitor management, contributing to objectives 2 and 3.
T3.1 Amazon of Europe Bike Trail route plan	The common route plan, prepared along a common methodology, will be the basis for route implementation (track data, signposting, establishment of resting and infopoints) and will contribute to trail management and promotion. Considering also regional consultations with stakeholders, it will define trail itinerary along aspects of attractiveness, safety and comfort. Regional reports will be prepared and consolidated into an overall report on trail implementation (objective 1).
T3.2 Amazon of Europe Bike Trail Academy	AoE Bike Trail Academy will develop a curriculum focusing on a base-qualification for managing the trail for the following target groups: service providers, booking centres, staff responsible for managing protected areas. The Academy will also include a quality assurance programme for ensuring service-quality of services along the trail for a sustainable trail-management, including Certification Partnership Programme for a network of branded service providers (objective 2).
T3.3 Functioning Amazon of Europe Bike Trail	Functioning Amazon of Europe Bike Trail will be finalised, including joint branding, trail infrastructure, and consolidated services along the trail at high quality standards for all visitors. Based on regional reports, a comprehensive report will be prepared on route implementation, on cooperation and capacity building activities with service providers. The report will formulate recommendations for further trail development and transferability to other trails or areas (objectives 1, 2).
T4.1 Amazon of Europe Bike Trail valorisation programme	The valorisation programme is the core output, defining the methodology how the revenues coming from the booking of the Bike Trail products will be used for nature protection within the planned TBR, and the model of future cooperation between protected areas and nature oriented NGOs in TBR. In line with the organisational structure set up in WP3, also a valorisation structure of all protected areas within the TBR is defined, ensuring sustainable funding of nature protection (objective 3).

1.3.2 The future of the Bike Trail

The future of the Trail is presented in the following figure and explained afterwards.

Figure 1: The future steps of the Trail

AoE Bike Trail fully bookable for 2022

AoE Bike Trail Booking system is one of the main benefits of the project and will be fully available in November 2021 allowing for bookings for the season in 2022, which starts at April 15th.

Fully bookable system will consist of the following features:

- cycle when you want: bookable daily,
- cycle where you want: start possible at any point,
- cycle for as long as you want: anything from one to 27 stages,
- cycle alone or with whomever you like,
- cycle as you want: with your desired flexible service.

Thus, the AoE Bike Trail Booking center and on-online reservation system enable users to book a customized cycling experience with almost limitless range of choices for cycling holidays from the comfort of your home.

The booking system allows for the following advantages:

- top advice from an experienced and competent team,
- unique individual travel planning and booking with online trail booking system,
- accommodation in best rated local hotels and bed & breakfasts,
- half board with focus on local cuisine,
- fabulous services such as luggage transport, shuttle services and transport back to the
- starting point,
- visit of most interesting local attractions, experiences and festivals,
- attractive and surprising trail offers,
- safety first: all travel offers comply with the Directive (EU) 2015/2302 on package travel and linked travel arrangements.

Joint strategy of Amazon of Europe as responsible green destination until 2030

Joint strategy for development of the transboundary green destination Amazon of Europe will have a crucial role in achieving the main project objective and specific objective 2, as a key strategic document for uniting the efforts of the pentalateral AoE area to be strongly present in international tourism markets and develop green tourism as one of key development opportunities in less developed border regions.

The strategy will be developed in close cooperation of key stakeholders from 12 participating regions, in a carefully designed participatory process. Consequently, the document will be developed bottom-up, resulting in much higher trust and motivation of stakeholders for its implementation later on.

The strategy will contain: joint vision for the destination, challenges of the area, clear mid- and long-term objectives and priorities, reflecting also the vision of the Danube Region, link to EUSDR, national, regional, local policies, joint strategic areas of cooperation, involvement of stakeholders, implementation plan with responsibilities, time frame and financial estimation, identification of tourism products and future cooperation possibilities.

3 new international tourism products ready in 2022

Joint flagship tourism products for international markets will strengthen already established brand AoE Bike Trail, communicate the AoE values, create the benefit for the destination and be ready for promotion in demanding international markets. The products will enable high-quality experience of the whole pentalateral area and will build on main natural and cultural attractions, local experiences and traditions, connected by sustainable mobility options (public transport, electric vehicles) and enhanced by modern digital technology. The tourism products will be developed in cooperation with tourism stakeholders (tourism boards, protected areas as key providers of nature experiences, key attractions etc.) with the goal to increase regional income. Examples of such product include:

<u>River Journey</u>
River Journey will offer multi stage river experience on the Mura, Drava and Danube with specified means of transport (e.g. traditional boats, canoe, rafting, SUP etc.) and overnights in towns/villages situated at the shores of the rivers.

<u>Magic cultural moments</u>
Magic cultural moments will enable exploration of cultural pearls along the Bike Trail, such as historical towns (i.e. Osjek or Varaždin), magnificent castles (i.e. Siklos), and authentic experiences with local population (e.g. cooking experience, where people learn how to prepare traditional and local sweet desert from Prekmurje or manufacturing the traditional straw basket) or visits to local cultural events.

<u>Amazon of Europe natural hotspots</u>
Amazon of Europe natural hotspots will develop and link high profile experience programmes, such as guided nature and river tours, photo safaris, regional food or cultural programmes and outdoor activities, suitable for protected river landscapes. The bookable product, linking these experiences, has to focus on green and sustainable means of transport on different levels.

Further work

Products
Further products will link the traditional quality producers within the development of a joint product that will be offered on the territorial market (e.g. canoeing on the river). Further products will be developed under guidance of Destination Development Organization, which will take care that the entire ecosystem of producers and developers will provide an unforgettable guest experience.

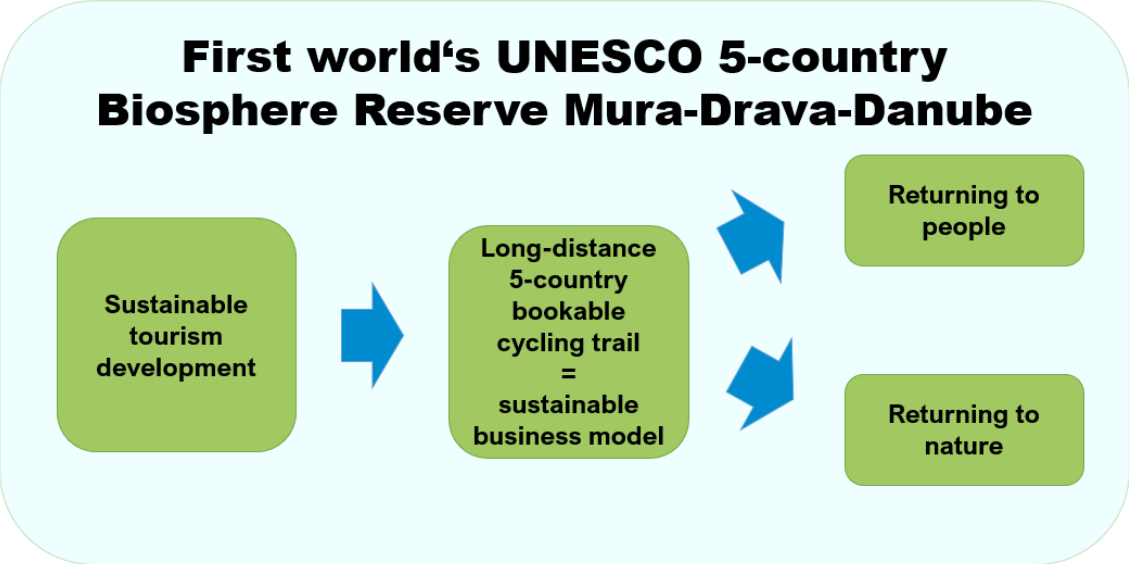
Marketing
Further work with respect to marketing covers the development of the strategic marketing plan, which will define market analysis and market opportunities, marketing objectives, target groups and users of the AoE flagship transnational tourism products, based on the latest Sinus Milieus model, target markets, branding and visual identity guidelines for marketing of the tourism products, for service providers and other stakeholders of the destination, communication objectives, communication channels and marketing budget. The strategic marketing plan will be the tool to enable the AOE Destination visibility and promotion at key international target markets, which are most inclined to high quality nature and culture products, including Germany, Benelux, Great Britain and Sweden.

Quality
A quality assurance model will be developed to ensure that all producers and developers involved in product development will ensure sustainability standards of local care. A quality assurance team will be set up within Destination Development Organization.

1.4 Amazon of Europe model

The Amazon of Europe model is based on the concept that is presented in the following figure and briefly explained afterwards.

Figure 2: The AoE concept



The concept is based on TBR MDD (first world 5-country biosphere reserve), which represent a living lab striving to implement the principles of sustainable development. The goal is to enable sustainable tourism development within the AoE protected areas to foster the exploitation of developmental opportunities in these regions. To this matter, the AoE Bike Trail is the first 5-country bike trail touristic product that is bookable. Thus, instead on focusing on the local areas it operates in the transnational manner. Furthermore, bookable AoE Bike Trail is based on the sustainable development business model principles and enables new and interesting jobs and working opportunities to the people living in the area, which hence stay there not seeking for job opportunities abroad. At the same time, such approach enables the part of the profit being returned into nature in the forms of projects for reservation of protected areas by the rivers.

International organisational structure for the Amazon of Europe Bike Trail aim at ensuring a sustainable and durable trail-management, will define responsibilities, rights and obligations of the partner organisations included in the bike trail management, and link to the valorisation concept. It also defines work-flows, decision making and business model approach for a network of professional regional booking centres and service providers.

Given the above, the Amazon of Europe model is based on 5 pillars, which are presented in the following figure and briefly explained afterwards.

Figure 3: Amazon of Europe model

International product & brand

AoE Bike Trail embodies a joint international 5-country touristic product that is represented as a brand that links together all regions by the rivers, tourism boards, tourist accommodation providers, mobility service providers and other relevant tourist attractions, sights, services and experiences (e. g. Vinaruim Tower).

Signposted route

Signposted route represents a connection of the entire route from Austria to Serbia on both sides of the Mura, Drava and Danube rivers. The route is marked by united common road signalization. Thus, in order for the cyclists to "not get lost", more than 1250 km of trails is marked with the AoE logotypes, 30 large info boards, 39 small info boards, 15 resting places, and over 1.300 road signs. To enable the trail to be bookable, it has been divided into 26 stages (at the end of each stage there is a large info board). Also, synergies with previous cycling projects have been utilized as many relevant projects have already been implemented in the tackled territory (e.g. integration of existing resting areas into AoE Bike Trail).

Regional partnership → AoE Bike Trail Destination Development Organization

Destination Development Organization enables a "bottom-up" product development approach and includes 11 regions and all municipalities by the rivers, which makes AoE projects' product unique opposed to the traditional travel-cycling agencies. These regions and municipalities are constantly not only involved in the process but also participate in decision making for trail development. Thus, project enables partnership between regions, conservationists, nature protection institutes, development agencies and bodies and business entities.

Booking Center

Booking Center, established by the AoE project, enables single contact point for all tourists/clients and offers bookable cycling experience. It is based on all-in-one-place approach and thus offers and serves clients with everything that they need, which is added

value of the center as no similar entity exist in this territory. Booking center has contracts with 60 hotels and 3 mobility service providers. Thus, the center could be regarded as all-in-one agency providing guests with all kinds of tailored support and making booking with various stakeholders. Clients always have the ability to book the accommodation as the Booking center and hotels hold the allotments agreement.

Cycle for nature programme

The Cycle for nature programme is a way of giving back to this beautiful region and maintaining the extraordinary ecosystems of the 5-country UNESCO Biosphere Reserve Mura-Drava-Danube.

The project has established the Amazon of Europe Bike Trail Destination Management Organisation, where a part of the contribution from your cycling holiday is used for financing nature conservation projects in the region. By booking the cycling adventure, clients are directly giving something back to the Amazon of Europe.

2 Internal evaluation and analysis of the Amazon of Europe Bike Trail project

In this chapter, the main goal is to evaluate and analyse the professional working process, the Amazon of Europe Bike Trail methodology and progressing of the project in general level. The goals of this chapter are obvious: identify the success factors of the model and to collect those factors which should be improved for the more effective adaptation of the model.
The internal evaluation of each thematic work packages was implemented with special focus both on the implementation process of the respective work package and its achievements.
As a basis of the task, Westpannon elaborated a set of questionnaires, that were addressed to the project partners who were part of the activities of each work package. The multi-level evaluation process of the Amazon of Europe Bike Trail model was performed by the work package leaders and the regional coordinators as well according to the following topics:

- one short questionnaire for the work package leaders to evaluate their respective work package which they are responsible for, because they have a better understanding and overview about all the details. Here the work package leaders had the opportunity to define the most success factors during the progress of the project, and of course if any negative factor was backing the progress of the project – total 4 work package leader summary and report.
- one short but general questionnaire about the project, the model and its transferability in general level – filled in by all partners.
- one general questionnaire about each thematic work package of the project – total 4 questionnaires filled in by all partners.
- one questionnaire about the work packages of the project where the territorial specifics are important – therefore Westpannon developed 4 different questionnaires for all the 11 regional coordinators.

Thanks to the results of the evaluation of the Amazon of Europe Bike Trail project and model, the spotlight of the most important factors (both the negative and positive ones) and will be the basis of the next chapter of this document, where the identification of the success factors will be collected as a guidebook how to transfer the model into a different area with relatively same background.

Based on this, the structure of the evaluation of each work package starts with a few sentences about the main points and goals of the respective work package, followed by a short summary by the work package leader. Afterwards, the main results of the questionnaires are presented.

2.1 Evaluation of the work package 3 (WPT1) – Product development

WP leader: Trail Angels

The objective of the work package was to develop a sustainable tourism product with main focus on biking, and to develop durable and sustainable management framework of the Amazon of Europe Bike Trail. As an initial step, a socio-economic analysis was prepared in the work package with the aim to describe the main characteristics and the tourism potential of

the target area. Afterwards, the biking product development was the next phase with the following milestones:

- development of an organisational structure
- development of flexible, serviced, and bookable products
- development of a standardised booking process

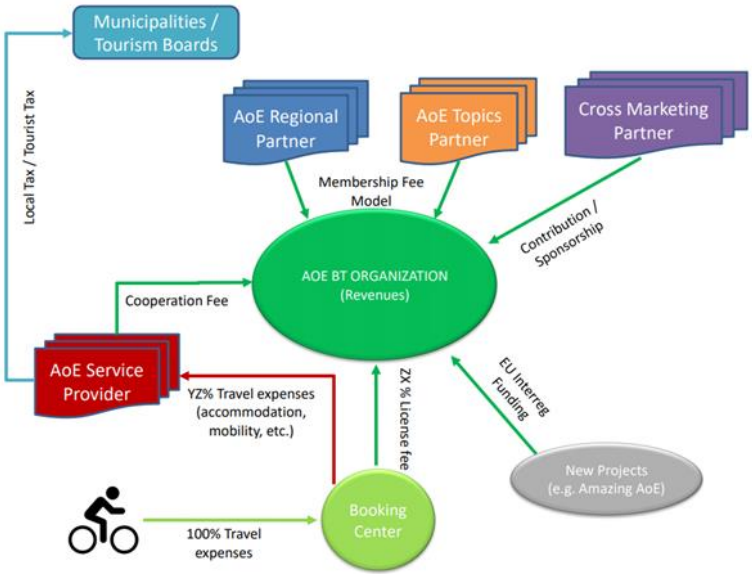
Besides the socio-economic analysis and the Bike Trail transnational organisational structure, the AoE Bike Trail strategic marketing plan, an online platform for promotion and booking purposes, and a mobile application were also part of the outputs in this work package.

The work started with the preparation of the socio-economic analysis, continued with the creation of the organizational structure in parallel with the bookable product, booking system and the preparation of the strategic marketing plan, then finished with the service provider involvement in the last periods of the project.

The analysis was prepared based on a data collection collected and provided by the regional coordinators, containing the main social, economic and tourism related data of each region – mainly at NUTS 3 level. In this data collection, the different service providers (accommodations, restaurants, cycling related providers) were also listed, as well as the travel agencies and tour operators, the main natural and cultural attractions, and protected areas. Every regional coordinator held two workshops regarding this topic in their region.

The two pillars of the organizational structure of the AoE Bike Trail model are the booking center (1) and an umbrella organization (2) which is a destination development (or destination management) organization in this specific case. The common intention of the partnership was the establishment of both one in parallel.
The umbrella organization (DDO/DMO) is the owner of the brand, decision maker body in the questions of the strategy, brand management, product development, communication and marketing, trail maintenance, as well as it is responsible for the successful implementation of the valorisation programme.
The booking center is the operational body of the structure, functioning as travel agency and tour operator, responsible for the booking system, inquiries, booking and sales management, service provider management, customer relations. It is (or might be) the executor of some delegated tasks by the DDO/DMO organization, such as communication, marketing, and product development.

Figure 4: Scheme of the AoE Bike Trail's organizational structure



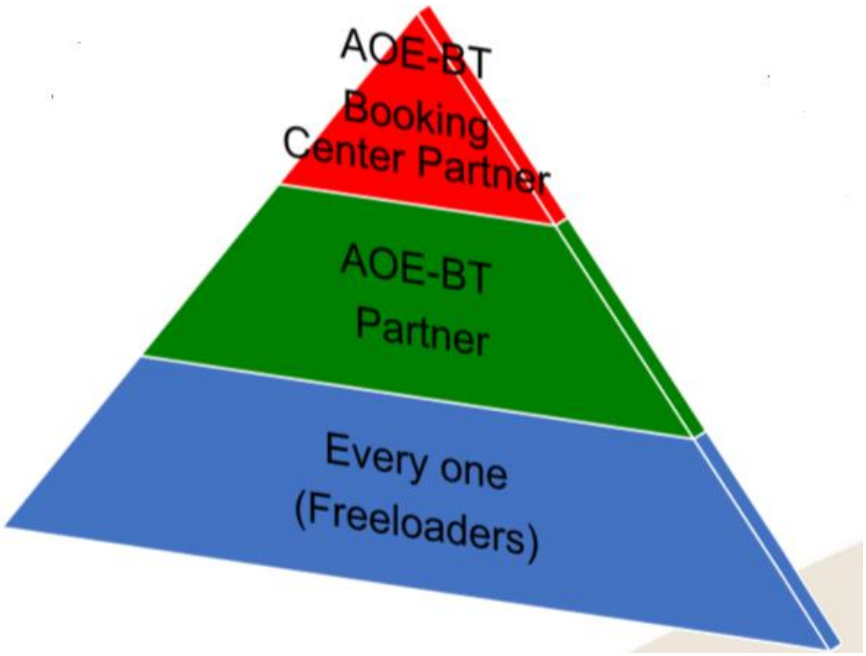
In terms of setting up a bookable product with services, the involvement of the service providers was one of the most crucial part of the activities within this work package. Personal meetings were the basic platform of the communication towards the local accommodation and transport/mobility service providers. In order to these meetings be effective, the organizational background of the bookable bike trail and the operational tasks of the process had to be clear and unambiguous. There were quality criteria set up that the service provider partners had to be fulfilled, including stricter "must" criteria and softer "can" criteria. In the case of accommodations, the list of "must" criteria was the following (2. table):

Table 2: „Must" criteria towards the accommodation service providers

1.	Identification and competence to the topic bicycle vacation: Knowledge about the bicycle offer in the region, personal advices, etc.
2.	Information to the topic bicycle holidays on the website (if they are running an own website)
3.	Information inhouse about the tour offers and tour descriptions (cycling maps), transfer offer to/with public transport, nearby repair shops, weather forecast, emergency numbers etc.
4.	Contact to professional service centers (e.g. bicycle shop, arranging of guides for guided tours, etc.)
5.	Acceptance of 1-night stays
6.	Location: within a distance of 10 km to AoE Bike Trail stage destination
7.	Bed and Breakfast has to be served inhouse (local, nutritious food)
8.	Covered, lockable, easy, accessible bicycle storage facility If not available: possibility to take bikes to the guest room
9.	Information where to find the next bicycle service partner in the surrounding area
10.	Drying facilities for bicycle clothing

The involvement of the partners in case of the AoE Bike Trail can happen at three different levels, according to the following figure (figure 5).

Figure 5: Pyramid of the partner involvement in the Amazon of Europe Bike Trail



Service providers at the top level (red) are partners contracted with the AoE Bike Trail Booking Center. They are fulfilled at least the quality criteria, provide room allotment for the Booking Center, by this, making sure that customers can book their rooms directly through the official Booking Center of the AoE Bike Trail. These partners are included in the official website as well as all the promotional materials without any fee but paying commission to the umbrella organization after every direct booking through the Booking Center.
Partners belong to the second level (green) are AoE Bike Trail Partners. In this case, the base of the cooperation is a cooperation agreement between the partner and the umbrella organization. They do not provide room allotment, but also can appear in the promotional materials and other platforms free of a charge at the beginning, but for a fee at a later stage.

2.1.1 WP leader summary

Trail Angels GmbH from Obervellach, Austria, was the work package leader, market participant from the field of tourism, and experienced in trail creation, trail management and how to make them available for booking. They are committed towards responsible tourism, brought valuable experience and knowledge into the project from the market in order to create an individually and serviced long-distance cycle trail in the target area, that places particular focus on responsibility and sustainability as well.

It was therefore essential, that all project partners agreed to a concept that went far beyond the establishment of a long-distance cycling route and its experience infrastructure, but aimed at long-term, sustainable, and regional responsible management of the long-distance cycle

path. These steps, which went beyond the usual, included such important contents as the product development up to the status “Ready for Booking”, the establishment of a regional booking center and the training of its staff, the information and motivation of the regional service providers, the integration of a valorisation program for nature conservation and the development of an efficient, transnational organizational structure.

The main challenges certainly were hidden in developing the organizational and business model in its entirety. Not easy when you consider that it is a transnational structure, where there are different legal framework conditions in the five countries involved. Also challenging to break down the tasks, which are differentiated into non-profit and profit (booking center) tasks. Their weighting and also the different perspectives on how they are weighted turned out to be very challenging. One fact that can be seen in all projects was the different levels of commitment of the regional partners, but this imbalance was always within an acceptable range. In the design of the booking center in particular, the greatest progress was noticeable when stakeholders agreed to take on specific responsibility. The final coordination between the DDO and the booking center was a time-consuming process, and it is not totally completed by the end of the project.

Regarding the service provider involvement, it was noticed that such a new and unusual management model led to an even greater overburdening of the regional service partners at the beginning. Especially compared to the project partners who were always involved anyway. All the greater was the surprise that after the multi-stage approach to the management model, the willingness to get involved in this project was very high and a positive curiosity has more and more displaced scepticism. Certainly, there are still certain differences in the management culture between the five countries, but all in all we are very optimistic about the involvement of the regional service partners and their cooperation with the Official Booking Center, which might represent a great asset for the future of the long-distance cycle route.

The product has already sparked a certain desire in the market. But what will be absolutely necessary now, after the end of the official project duration, is great consistency. A great consistency in performing the core tasks for the long-term management of the long-distance cycle path. In all five countries and in a balanced partnership. The following challenges are certainly the most demanding and will have a great influence on the future success of the product:

- The willingness to raise resources for the maintenance of the long-distance cycle path and to use these resources in an efficient and professional manner. Smart trail maintenance is a core trust builder for the international reputation of the bike trail.
- The willingness to raise resources for the promotion and marketing of the long-distance cycle route. It can be possible in a direct way, with a financial contribution and indirectly with strong lobbying, to inspire the national tourism organizations and political leaders.
- The willingness to raise resources for quality management. For a continuous qualification of the regional service providers and for the support of the official booking center.
- The willingness to consistently implement the valorisation program. Both for the differentiation of the Amazon of Europe Bike Trail according to its claim “Cycling for

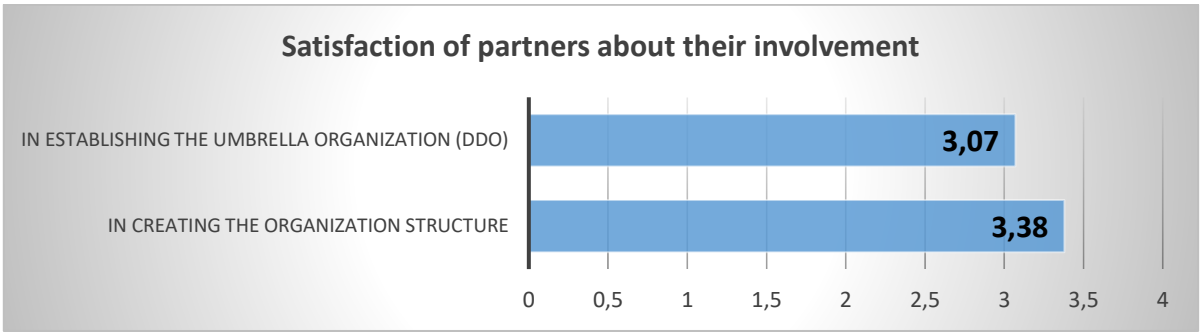
Nature" and for a new, real partnership between nature conservation and sustainable tourism.

2.1.2 Results of the internal evaluation

In form of the online questionnaires, partners were asked about their opinion on WP3 related activities.
First of all, regional coordinators were able to perform all of their tasks regarding the socio-economic analysis without major difficulties, even though some of them faced minor issues in relation to the stakeholder involvement and data collection. Raising the interest of the stakeholders toward this topic was not easy in every region, and some of them could not collect every needed data for the analysis since certain data were not available or were completely missing.

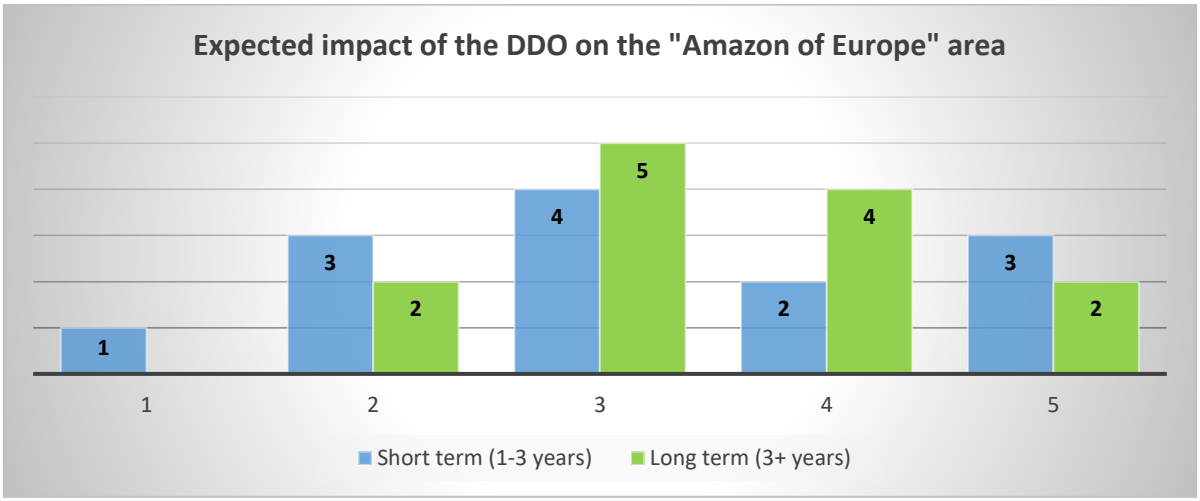
Based on the given answers, it revealed that this work package was one of the most difficult ones in many respects, and the issue of the organizational structure can be described as a hard task. Regional coordinators probably expected a greater involvement of themselves in forming the organizational structure and defining the tasks and responsibilities of the established bodies. Especially the topic of the umbrella organization (DDO/DMO) made the partnership quite divided. Partners evaluated on a 5-point grading scale, how satisfied they were with their involvement during some specific tasks in WP3. It reveals that their role over the DDO establishment was graded even lower compared to their involvement level in setting up the whole organization background generally. The numbers show the average of the given points. (figure 6)
The definition of its tasks and responsibilities, and the division of tasks between the Booking Center and the umbrella organization should require further development and finetuning.

Figure 6: Regional coordinators on their involvement in WP3 related tasks (average points on a 5-grades scale, where 1- not satisfied at all; 5- very satisfied)



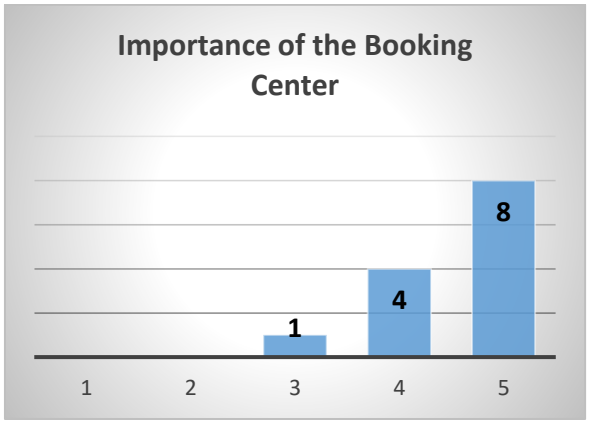
They have also different points of view in terms of how effectively a newly established organization, such as the DDO in this case can make an impact on a greater area ("Amazon of Europe" area). Without any legal power, can it be a relevant "player" in the region? Many of the partners have concerns in this regard, but they are slightly more hopeful and optimistic in longer term and think that its impact can be larger by time. The average of the given scores by the partners is 3,23 in the case of "short term", while 3,46 in the case of "long term" (figure 7).

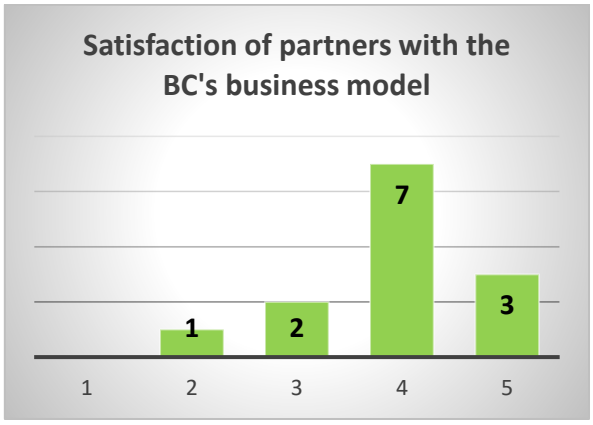
Figure 7: Distribution of the given scores by the partners, regarding the expected impact of the umbrella organization



On the contrary, compared to the DDO issues, the level of partners' satisfaction seems quite high regarding the Booking center (figure 8). The importance of the BC is almost unanimously acknowledged and understood by the partners, the related worked out business model is also accepted by them. Most of the given scores are 4s (on a 5-grade scale). On one hand, this is showing that they are basically satisfied with the business model itself, but on the other hand, indicating that there can be shortcomings or there are some details which they do not fully agree with (figure 9).

Figures 8-9: (Left:) The importance of the Booking Center based according to the opinion of the partners (Left); Distribution of the received scores in connection with parters' satisfaction with the business model of the BC (Right). On a 5-grade scale. 1- not important at all /not satisfied at all; 5 – very important / very satisfied

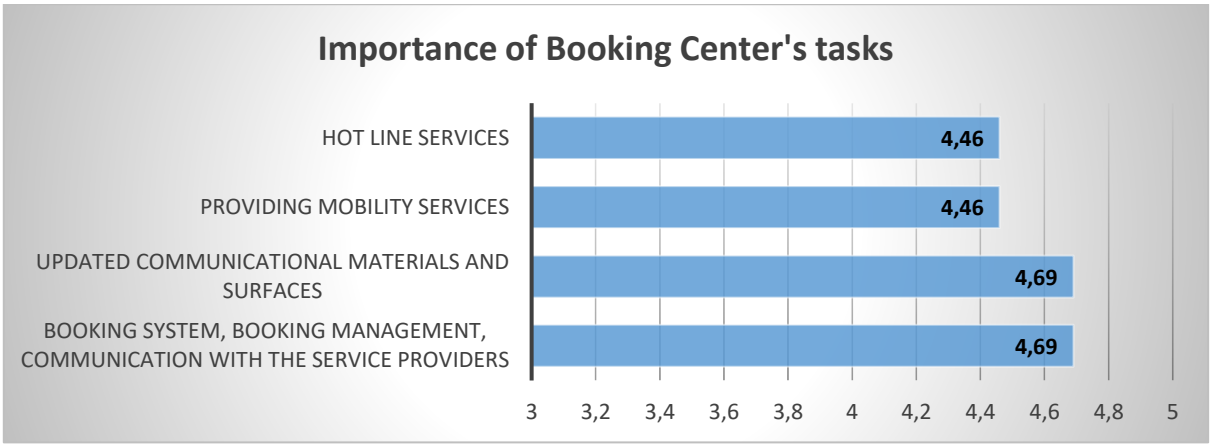




In terms of the product' success, partners also graded the importance of certain Booking Center related tasks. The given points pointed at the importance of multiple tasks that the booking center has to focus on. According to this, an order can be set up, however each one is considered as very important based on the received scores (figure 10). The two most important points are the effective booking management itself, including all the operational aspects of the booking system, and the communication with the service providers. Always correct and updated information need to be provided towards the clients in every

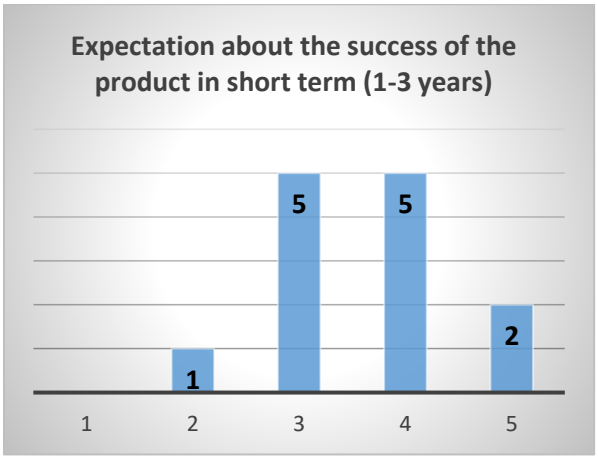
communicational channel including the webpage, the application, as well as the printed materials.

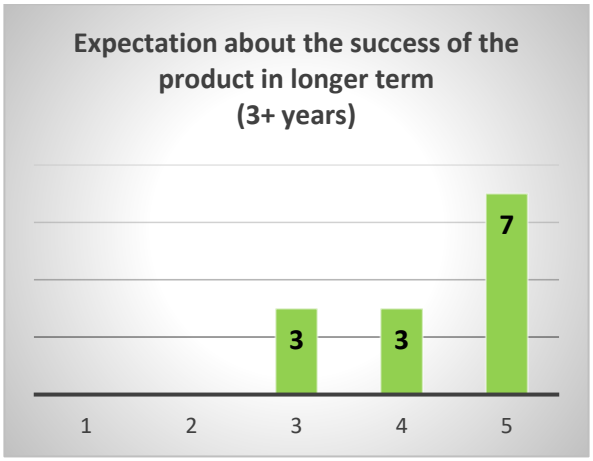
Figure 10: Importance of certain tasks of the Booking Center, based on partners' opinion (displayed points are the average of the given scores, 1- not important at all, 5 – very important)



Regarding the possible success of the created sustainable cycling product on the market, the partners basically show optimism, although it is visible as well that many of them rather expect a "slower" start, than a quick or instant success. (figures 11,12). So, certain level of patience can be a needed, giving time to the product to find its "real position" and become well-known amongst the potential customers. Partners fortunately have trust of the strengths of the existing potentials in the area, as well as in the existence of the needed demand of the market. So, if the product has the needed content, quality, and it is well-positioned on the market, then the Amazon of Europe Bike Trail, as a bookable cycling product can achieve the desired success.

Figures 11,12: Distribution of the given scores which refer the expectation of the partners regarding the product success in short term (left) and in a longer term (right) (on a 5-grade scale, where 1 – not successful at all; 5 – very successful)

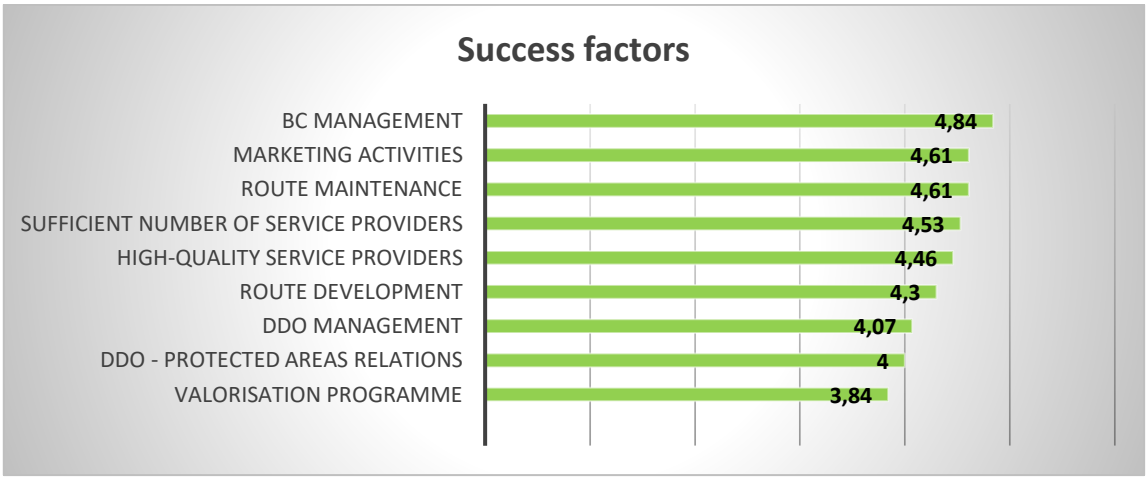




Partners also shared their opinion in regard to the main success factors (figure 13). Based on the recieved points, all of the listed activities can be considered important, since the average points are mostly between 4 and 5. Three main activites can be highlighted which are considered as the most important ones. Firstly, the role of the Booking Center need to be

emphasised, which received the maximum points from almost all partners. They think that an effectively working Booking Center, together with a well-functioning booking system are the most essential factors for the success, while marketing activities and maintenance of the designated and equipped route are tied in 2nd and 3rd place. It is noticeable that maintanence is ranked over route development. It means that the majority of the partners think that taking care of what we already implemented comes first, then finding the possibilities how to improve the route in the future comes just after it. The involvement of service providers both from the qualitative and quantitaive aspects is also important, because the sufficent number of involved accommodation and other type of service providers (mobility service providers, restaurants, etc.), ensure the necessary basics in order to the product be bookable. Besides the number, their territorial distribution also matters in this aspect, since the route have to be covered with services in its full length. Quality of the service providers we cooperate with has a direct influence on the quality of the product we offer. At the point when the quantitative side is already ensured along the route, it would be a possibility to put more emphasis on the involvement of those service providers whose attitudes are more fit into the basic concept of the Amazon of Europe Bike Trail (strong nature-orientation, responsible approach in any way). The focus on nature is a strong part of basic concept of the trail, the experiences that the cycle route can offer are really leaning on nature values, and through the valorization programme (giving back to nature), it is important part of the business model as well. Although partners think that the product, as a cycling product might be successful even without a well-implemented valorization programme, or without effective cooperation with the protected areas, at the same time it is recognized by everyone that this is the part that could make the Amazon of Europe Bike Trail really unique in the cycling tourism sector of the market.

Figure 13: Importance of the listed factors in terms of the future success of the product (numbers refer to the average of the received points on a scale 1-5 where 1 – not important at all; 5 – very important)

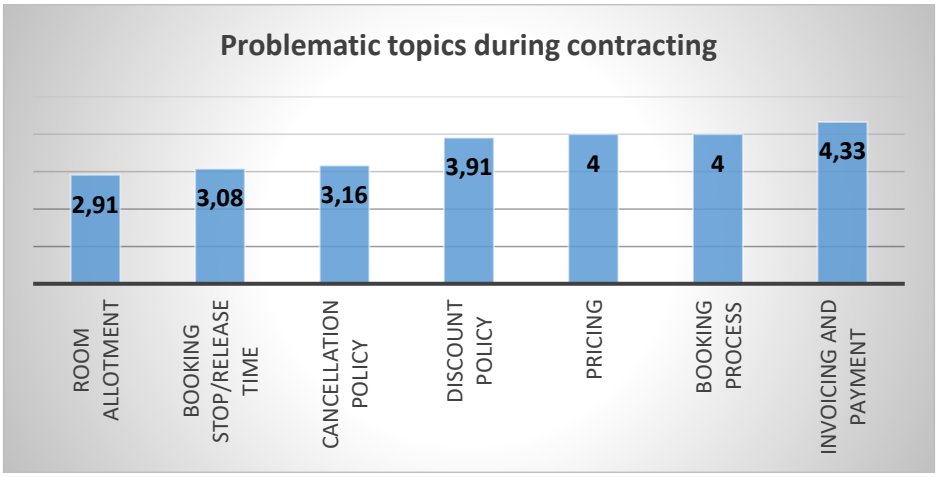


The involvement of the service providers did not promise to be an easy task, since they had to be convinced to join a product which just planning to enter the market. As market participants, they had to consider that any of their resources, time, or other efforts that they are devoting to the Amazon of Europe Bike Trail might be a risk, which can easily affect their operation. In order to dispelling their doubts, a clear vision and a well-developed and convincing organizational and business model had to be put on the table. The aim was to cover

all the 27 daily stages of the trail with services, which was not an easy task due to territorial differences. Since the development level of the involved regions are different, the territorial distribution of the service providers along the trail is very uneven. Some regions can be considered as peripheries in their countries, dominantly rural areas, with limited tourism, or without any tourism, which means that the number of related service providers (like accommodations) will be limited as well in these areas. The results of the internal evaluation are reflecting this very well: More than 40 % of the regional coordinators found the accommodation possibilities limited in their respective region. Less service providers mean less room of manoeuvre in terms of involvement, but larger compulsion to contract at least one of the few. When the lower number meets narrow range offer or lower quality, that makes the situation particularly problematic in certain areas along the route.

Some regional coordinators could manage the contracting with the local accommodations relatively easily, but majority of them experienced some issues during the process. Based on their experience, the content of the contract between them and the booking center can be clearly divided into two major groups: not problematic topics and more problematic topics. The room allotment, booking stop/release time, and cancellation policy were those parts of the contract that belong to the latter group. Particularly the room allotment was the topic that can be considered as the most difficult, 7 regional coordinators gave one of the two lowest grades over the course of the internal evaluation, which refers it was “problematic” (1) or “very problematic” (2). This resulted the very low 2,91 average point (figure 14). In many cases, accommodations did not want to, or small-scale accommodations simply could not provide allotment for the Amazon of Europe Bike Trail Booking Center. Additionally, the service providers sometimes worried about the short booking stop/releasing time condition as well. The date, after which the unsold room - allotment - goes back to the accommodation from the booking center seemed too close, letting them a very limited period of time to try selling these rooms on their own. Some accommodations objected that the original cancellation conditions provide too much freedom to the customers (to the detriment of the accommodation service providers), allowing them to cancel their booking really close to the date of arrival, without any (or just limited amount of) cancellation fee.

Figure 14: Average points of certain topics regarding the contracting with accommodations, given by the regional ccordinators on a 5-point scale (1- it was very problematic, 5- it was very easy)



Besides accommodation, other types of services need to be integrated into the system, such as mobility services including the luggage transfer, or back transfer to the starting point. Involvement of this type of service providers was extremely challenging since simply there are no entrepreneurs dealing with this kind of activity in many of the regions, or their number is very limited in other places. Almost 60 % of the partners found difficult the involvement of mobility service providers, 3 of them answered that it is very difficult to find at least a single service provider who can perform this task.

2.2 Evaluation of the work package 4 (WPT2) – Nature oriented trail

WP Leader: WWF Austria

The focus of this work package was on nature-oriented development of the AoE Bike Trail, with the main goals of defining common standards for the bike trail and its related infrastructure, such as the info boards and resting places, supporting the unified appearance and implementation in all 5 countries. This work package was completed the earliest of all, included the elaboration of a nature-oriented visitor guidance, in which concept rules were defined to ensure the harmony between the infrastructure of the bike trail and the nature protected areas. The bike trail often leads through protected or ecological sensitive areas where cyclists must pay special attention not to harm or disturb these areas. This was the reason behind the elaboration of the visitor guidance concept, that needed to be respected over the course of the route planning process. The visitor guidance concept defined 3 different areas: *nature area, visitor area, stop over.*

Nature areas are indicated as highly valuable areas from ecological point of view. Cyclists are not recommended to stop there, neither to leave the designated path within a nature area. *Visitor areas* are easy to reach or access and infrastructure may already exist here. Bike trail related infrastructure could be built only within visitor areas. *Stop overs* are very similar to the visitor areas, cyclists could be steered there, but new infrastructure was not allowed to build.

This work package was strong relation with work package 5 (bike trail implementation), its outcomes were utilized there.

2.2.1 WP leader summary

The process started in autumn 2018. As a first step the methodology, data research and first mappings have been done. In November 2018, a first draft of the sensitivity map was sent to the project partners and relevant contacts (e.g., protected area administrations, NGOs) in the form of an online map. The feedback received was used as basis for the first workshop on nature-oriented visitor guidance in January 2019. Then partners started to work on visitor areas and stop overs within a group work session, which included two related workshops. The first one took place during a Steering Committee meeting, when they tried to define these areas along the whole trail. After the workshop feedback and input given by the participants

was incorporated into the online map as part of the visitor guidance concept, which was the basis of the first written draft of the Amazon of Europe visitor guidance concept was sent to the partnership on 1st of March 2019, asking for input and feedback. The received feedback was incorporated into the document and used for preparation of the second workshop in June 2019. Prior to the meeting, partners received the second draft of the document via e-mail. During the next Steering Committee meeting, the feedback of the trail implementation standards (Standards and infrastructure) as well as the nature-oriented visitor guidance concept and the plan for the trainings on nature-oriented implementation were presented.

In the next period, the standards had been presented within a set of trainings to all regional partners and their stakeholders, in a set of workshops, as well as the elaborated nature zones and proposed visitor zones. Regional partners were asked to keep those results in mind in the elaboration of the proposed bike route and its elements.

In the period December 2019 – February 2020, regional partners reviewed the most up-to-date version of the route and highlighted the final stopover points (including river view and resting places on existing infrastructure) as well as the spots planned to be equipped with further infrastructure elements for resting or information, within the Amazon of Europe project. Proposed locations were reviewed together with WWF Austria, responsible for nature-oriented implementation, and adjusted to accommodate the previously delimited nature areas. Then, during 5th Steering Committee Meeting, side meetings with the regional partners took place to finalize the online map of the nature-oriented visitor guidance of the trail and once again highlight conflicting points between highly sensitive nature areas and planned visitor areas as well as proposed river access points or detours.

In March 2020 the planned route of the bike trail was finalized by the PP responsible for route planning and implementation (Westpannon) and a final alignment of the proposed visitor areas and stop-overs was done, documenting all potential future extensions of such facilities, as well as decisions regarding certain points, to be excluded.

The timewise logic and planning of the work packages was such, that it permitted a good integration of the work package within the project. The documents for infrastructure were planned to be ready very early, and the plan was well respected, so that a nature-oriented bike trail route is possible. The plan was also respected; therefore, no delays were caused in this process. The visitor guidance plan was completed early; this allowed to base many of the follow-up activities on these outputs. This in turn allowed for other activities to be based on them.

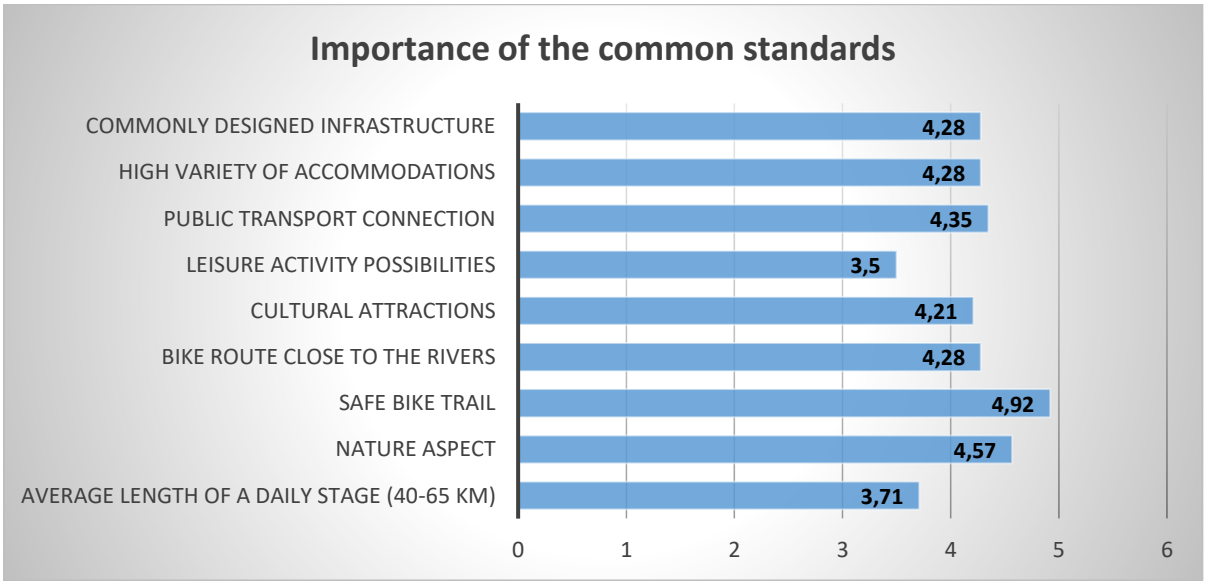
One necessary change was related to the contents and focus of the second round of trainings for nature-oriented bike trail steering and support (Overall nature-oriented implementation supporting and steering). The initial planning had foreseen a second presentation of the infrastructure and the stnadards, however, the timing of the trainings was no longer workable with the content since most of the regional coordinators had already planned or even completed their procurement for infrastructure by that point in time. The focus had to be adapted in order to fit into the frame and time plan, but it could be well used for combining a

workshop focused on the overall nature orientation of the bike trail, together with stakeholder workshops of WP 3.

2.2.2 Results of the internal evaluation

Partners found the definition of common standards very important task to do in case of a transnational touristic trail, more than 85% of them answered that it is “important” or “very important”. The elaborated document with the title of “Amazon of Europe – transboundary standards for nature-oriented trail implementation” supported regional coordinators in route planning, they needed to plan the route in their region in line with the laid down standards. Partners also graded the significance of each defined standard on a scale 1-5. As it is visible below, safety aspect has outstandingly the highest average point based on the received grades (figure 15). The concept of a safe bike trail includes the good surface conditions and the avoidance of roads with heavy traffic and speed limit. The used roads must have proper rideability from 15th of April till 31st of October. The second most important is the nature aspect, more specifically each daily stage has to contain at least two places with perfect views to the main river, sidearm, oxbow, or wetland. Furthermore, each stage needs to offer at least one stop for having a rest directly at the river (main river, sidearm, oxbow or wetland). When the trail can run really close to the rivers, that is an ideal situation, but because of geographical reasons and the non-existence of the needed infrastructural background in certain regions, it could not happen all along the whole bike trail. It means that the route has to move away from the rivers in some areas, then it comes closer again later on. Partners seem to show certain level of understanding and acceptance towards this question if the trail keeps the focus on the presentation of the natural values.

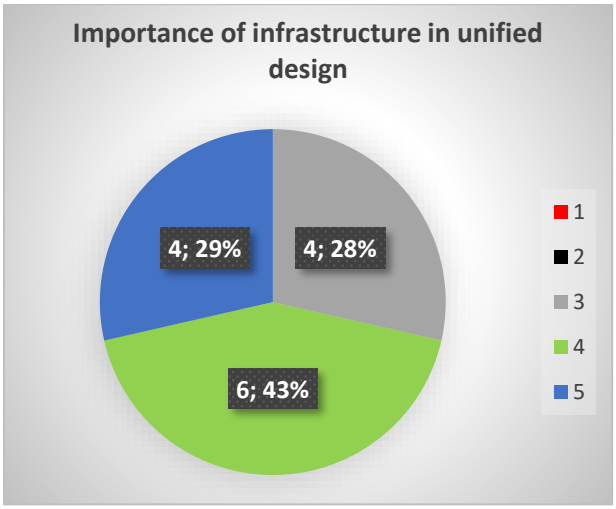
Figure 15: Importance of the common standards based on the scores given by the partners (on a scale 1-5, where: 1- not important at all, 5- very important)

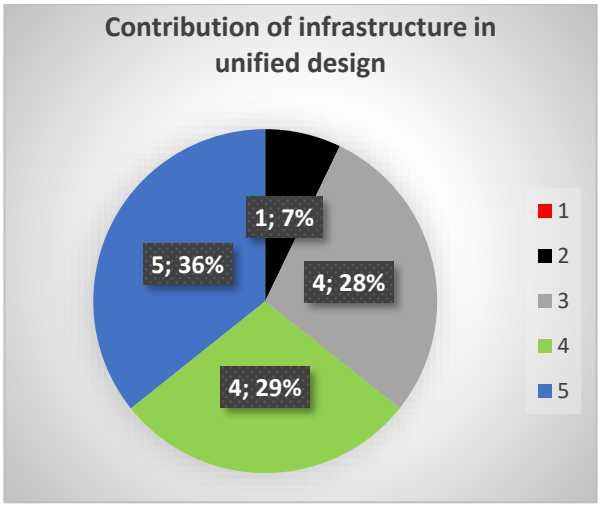


The importance of providing additional leisure activity options (f.e. swimming), as well as the pre-definition of a daily stage length (40-65 km) were considered less significant.

High proportion of the partners (more than 70 %) said that the placement of infrastructure elements with unified design is as well as important, because it can make the product/brand recognizable, thus it can contribute to the success of the trail. At the same time, they consider it more like an additional but not a crucial factor that makes a bike trail successful (figures 16, 17). The production of these infra element (information boards, resting places) caused some difficulties to the regional coordinators. First of all, they had to face with the general lack of manufacturers in certain regions. Secondly, due to the lack of the needed technological conditions, many of the existing ones had not the capability to produce the infrastructure elements in the form designed in the common standards document. Above mentioned factors made this production process longer and more difficult in a lot of regions.

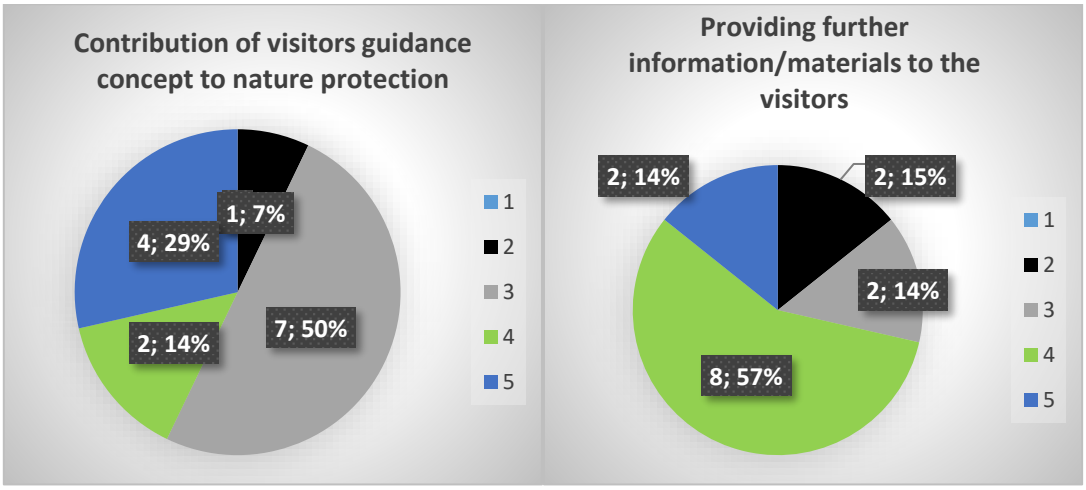
Figures 16, 17: Partners opinion on the importance of the placement of unified infrastructure elements along the trail (right); contribution of infrastructure in unified design to the success of a bike trail (1- not important at all / no contribution; 5 – very important / huge contribution)





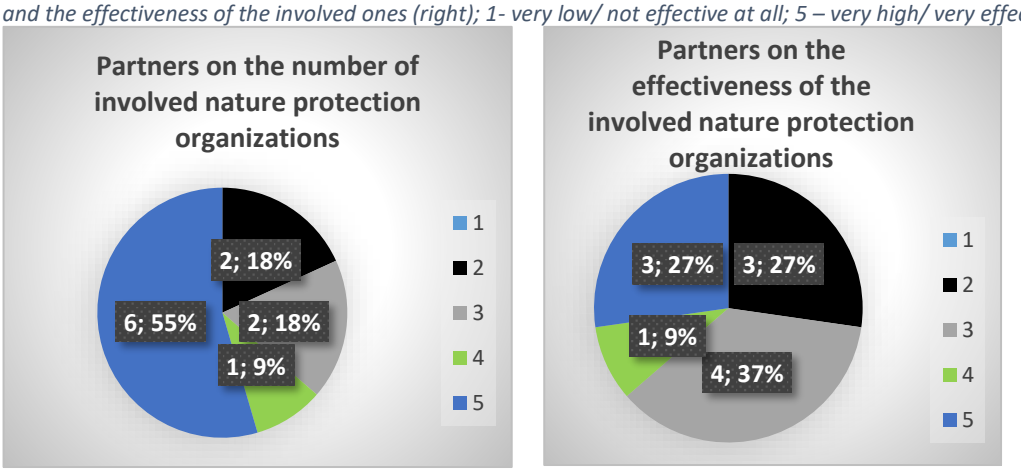
Acknowledging the importance of the elaborated nature oriented visitor guidance, but 50 % of the partners have some concerns about its practical impact (figure 18). The document was used over the course of the route planning process, but the extent of its real contribution to the preservation of sensitive/protected areas in practice, especially its impact on the behavior of the visitors is still questionable to them. On the other hand, majority of the partners (more than 70%) think that providing further information or spreading materials in relation with awareness raising would be useful, in order to infuence the attitudes of the visitors during their stay inside the sensitive nature areas (figure 19).

Figures 18, 19: Opinion of the partners on the contribution of the visitors guidance to the preservation of sensitive/protected areas (left); Importance of providing further awareness raising information/documents (right). (1- no contribution at all / not important at all; 5 – huge contribution / very important)



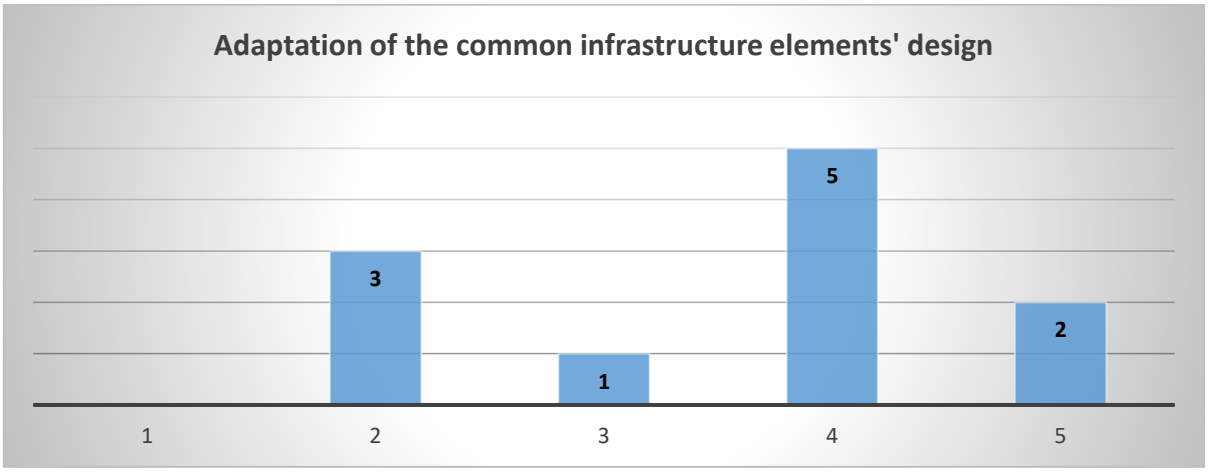
The stakeholder involvement in WP4 generated mixed feelings among the project partners. Due to the thematic of the work package, national parks, authorities responsible for protected areas, nature protection organizations (including NGOs) were primary target groups, basically these organizations were invited to the related workshops. Partners gave their opinion in relation with the involvement of these organizations in their respective territory from two aspects. Firstly, majority of them feels that successfully reached considerable percentage of these actors, only four of them are not really sure in it. In terms of the effectiveness of their participation, partners are slightly less satisfied, since only 4 out of 11 regional coordinators gave one of the two best grades, the rest of the partners feel that the contribution of the involved organizations could have been higher (figures 20, 21).

Figures 20, 21: Partners' opinion on how they are satisfied with the number of the involved nature protection organizations (left), and the effectiveness of the involved ones (right); 1- very low/ not effective at all; 5 – very high/ very effective



Almost all the partners believe that the final designated route in their respective area is well in line with the common standards, defined within this work package.
Despite of the factors that made the production of the info boards and resting places difficult in a way as it is described and presented in the common standards document, the outcome of the process can be considered successful. Altogether 7 partners were able to manage it relatively easily, but 5 of them had issues during the process, while 4 additional regional coordinators found the adaptation of the common design moderately easy or especially difficult (figure 22).

Figure 22: Partners on how difficult was to adapt the common design of the infrastructure elements (1- very difficult; 5 – very easy)



2.3 Evaluation of the work package 5 (WPT3) – Bike Trail Implementation

WP Leader: Westpannon

The aim was to create a bicycle trail along the three rivers Mura, Drava, and Danube, which is presenting the nature values of the UNESCO 5 countries biosphere reserve, and appropriate for cycling on it at the same time. A route planning methodology was elaborated as a first step, which was commonly accepted by the regional partners, and this was the basis of further activities.

The work package bike trail implementation contained 3 main activities, as following:

- **Detailed route planning**
- **Route implementation**
- **Amazon of Europe Bike Trail Academy** (this activity was out of the responsibility of Westpannon, activity leader is Trail Angels)

Descriptions about the activities more in a more detailed way can be found in the following chapter.

2.3.1 WP leader summary

The first phase of the work package was route planning, with the goal to find the most ideal route of the Amazon of Europe Bike Trail. The extent of the target area was hundreds of kilometers from Mureck (Austria) to Mohács (Hungary). In order to reach that goal, some basic principles were followed from the beginning:

- bottom-up approach instead of top down
- keeping in mind that we are creating a long distance-bike trail.

During the planning, we were applying a basically **bottom-up approach**, altogether 11 regional coordinators from 5 different countries had to define the route in their respective areas.
Choosing the dominant approach of route planning was not an easy task to decide. We had to clearly understand the advantages and threats come from each approach then find the one which fits the most to this project. Putting more emphasis on bottom-up approach means local interests can easily come into the foreground, but regional coordinators have all the required knowledge about their territory to be able to design a route with 100 % responsibility. Since the whole area that must be covered is huge, the knowledge of the regional coordinators can be considered as essential. We could not have ignored this fact in any way, and eventually this approach was chosen. At the same time, we had to constantly make sure that local interests did not come at the expense of the interests of the project (trail).

The top-down type of planning would have meant that a small group of people (practically the WP leader in cooperation with the involved experts) define the whole route, letting less room for the regional coordinators. This solution would have helped to equally enforce the main aspects of route designation in all regions, but in case of this project, it would have carried several threats. On one hand, due to the shortage of information comes from the huge extent of the target area, it is doubtful that we would have been able to make the best decisions without the knowledge of locals in every cases. On the other hand, keeping the regions/regional coordinators motivated was a key not just short term, but in a longer term as well. If they felt themselves as only executors instead of substantive actors with real words and impact on the process, the effectiveness, and their willingness to cooperate could have easily dropped down dramatically. So, applying a basically top-down approach would have seriously endangered the success of the route planning process.

The entire process required constant attention from the WP leader side to allow the presence of local interests in the route planning to keep the regions motivated, but not letting them to adversely affect the outcome of the project. So, the WP leader had the responsibility to ensure the healthy balance between the local and the project level interests.

Secondly, it was important having in mind all the time that we are creating a long-distance bicycle trail, which can only be successful if it meets all the requirements of a good long-distance bicycle trail. So, we needed to be aware of these factors.

The WP Leader, Westpannon elaborated a methodology which has been presented in project meeting and jointly accepted by the project partners. The methodology contained those most

important factors that had to be taken into account during the route planning activity. Three sets of factors have been defined, as follows:

- Route related factors: safety (traffic), comfort (surface, public transport connections)
- Tourism and bicycle related services: accommodations, restaurants, shops, bike repairs
- Nature and culture experience

By accepting this document, regional coordinators became responsible to design a route in their region which is fully fit to the points and principles of the methodology. The trail is split into **daily stages** which are performable distances by bicycle within one day, and these are also bookable units. The first step to define daily stages was to find the **stage points**, where a daily stage ends and the next one starts from. Those settlements were appropriate for being a stage point where cyclists can stay for the night, get some food (hot meal), and other services (f.e. bike shop or bike repairs) are available for them. As second step, these stage points had to be connected with a continuous route, based on the commonly accepted methodology, regional coordinators designated this route in their region responsible for, which resulted the 27 daily stages with more than 1250 km total length on both riverbanks of Mura, Drava, and partly the Danube rivers (picture 1). Our intention was to find that perfect length for one day cycling which is not too long to be unachievable, neither too short.

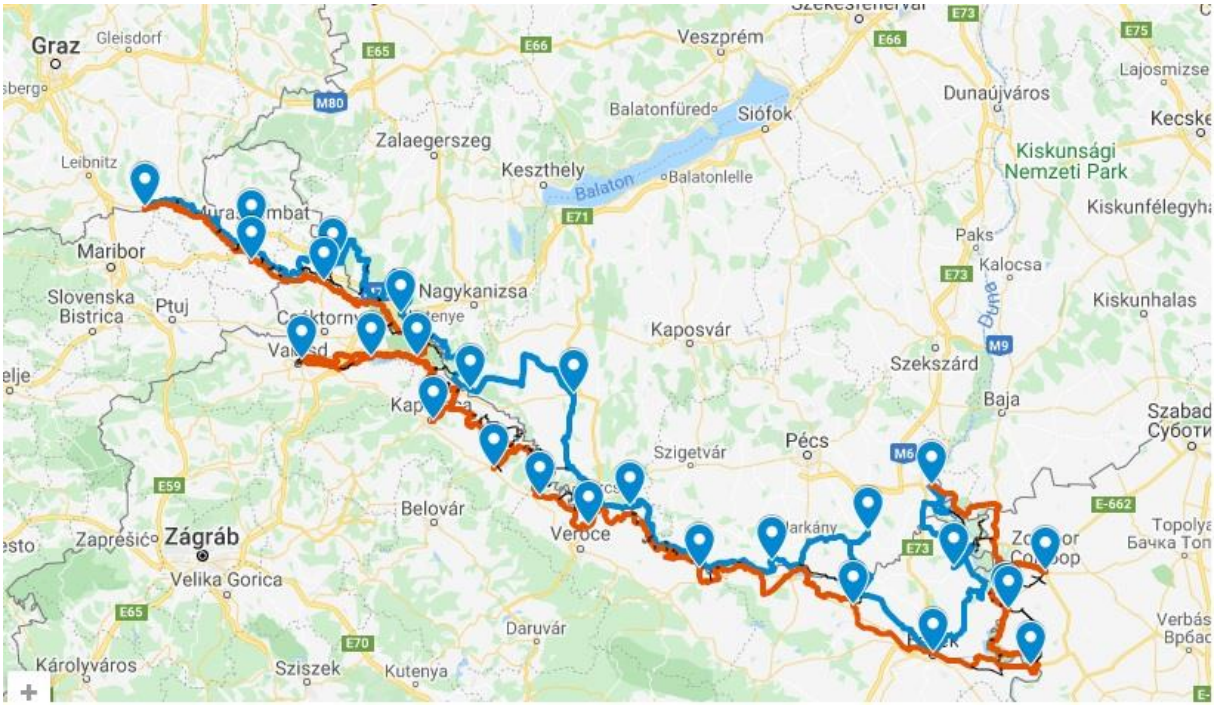
Since regional coordinators were responsible for route designation in their region, the importance of the **quality check** by the WP leader is/was high to ensure the best result at the end. That means the WP leader had the “right of intervention” if it is necessary, it can be considered as a tool for quality assurance. Communication was another crucial but working tool in this respect. During the route planning process, partnership faced with many problematic questions or disputes several times. In these cases, meaningful and effective bilateral discussions took place between the WP leader and majority of the regional coordinators, that helped to find good solutions for problematic issues in a cooperative way. It meant that onetime the WP leader could convince the regional coordinator, while another time the WP leader accepted the argument of a regional coordinator. In our opinion, this kind of conversation increased the coherence between the actors involved in the project.

As conclusion, the bottom-up planning worked well, because provided substantive role for regional coordinators, while – with the control by the WP leader – successfully helped to reach the project/product level goals.
The trail consists of two types of routes:

1. **main route** is a continuous route from the start point (Mureck, Austria) to the end point (Mohács, Hungary) Mohács, which never breaks and never forms circles, loops, or dead ends, always goes in one direction. It is not necessarily the most direct route between two points. The main route means the backbone of the Amazon of Europe Bike Trail.
2. **detours** are additional routes (mostly dead ends) which are connected to the main route, and lead to places that thematically linked to the trail (river view points, natural values, or other type of POIs).

The involvement of the detours was reasonable for several reasons. Firstly, this trail strongly connects to the three rivers (Mura, Drava, Danube), but due to the shortage of bikeable roads in the close vicinity of the river flows, we could not manage to reach river view points or sites close to the rivers by a continuous main route without using dead-ends. The cyclists should have gone back and forth on the same track to visit these points, and that is exactly what we wanted to avoid. In many cases, detours were the only way to connect these valuable sites into the trail. Secondly, by using detours, regional coordinators get the opportunity the present their region in a better way. If the cyclists have time and willingness, they can spend more time with the exploration of a specific area.

Picture 1: Stage points and daily stages of the Amazon of Europe Bike Trail (blue line = north route; red line = south route)



Route implementation

After the planning phase was over, the next major part of the work package was the implementation of the route. This activity covered the production and installation of the signposts and other infrastructure elements (resting places, info boards with useful information and maps, bike racks, repair stands, etc.) along the whole bike trail. Infrastructure elements were made in the same and commonly accepted design by the partnership, worked out in WP4 at the early stage of the project. Over the course of the route implementation process, coordination was the main tasks of the WP leader. New roads were not constructed during the project, but direction signs were placed all along the route.

The difficulty of the process was that the WP leader had less impact on the process compared to the planning, the production and installation of infrastructure elements, as well as obtaining the necessary permits caused delays in many regions. Regional coordinators needed to be complied with the national rules of (bicycle route) signalization. This was task of the partners which required communication with the responsible ministry in many cases. In many

regions, the implementation preceded by public procurement(s) that significantly increased the timeframe of the entire process.

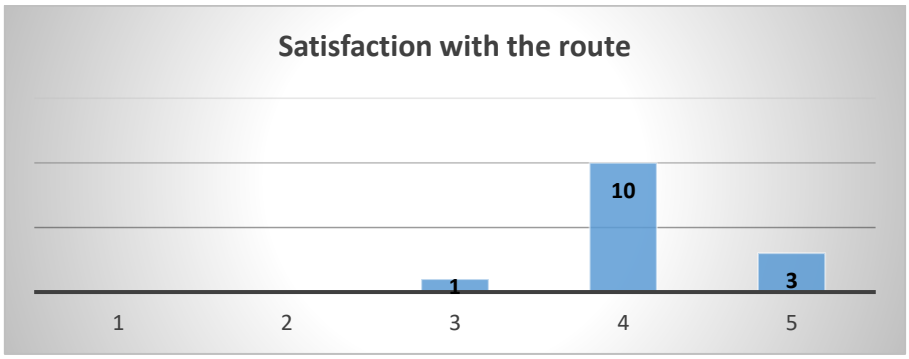
The number and territorial distribution of these infrastructure elements along the trail was not regulated. Large info boards were the only exception, both the start and end points of each daily stage had to contain one of these infra elements. This was the minimum criterion, but partners optionally could be placed additional elements along their stage(s) with no limitation.

In summary, positive aspect was that the cooperation basically worked between WP Leader and the regional coordinators, which meant effective communication and the acceptance of justifiable arguments of each other. On the negative side, since the trail consists of already existing roads only, in those areas where the current features of roads are not so favourable, the route designation was very difficult. In many cases, even though we chose the best available option, the result cannot be called perfect. For the future, need to keep in mind the importance of the maintenance of the designed route (including the maintenance of the signposts and infrastructure elements, as well as the road conditions). In addition, paying attention to constantly overview the possibilities to make the trail better will be also important.

2.3.2 Results of the evaluation

As it written above in the WP leader summary, despite of the unfavourable circumstances and the difficulties in many regions, the final route of the Amazon of Europe Bike Trail is a good one. It can be a proper route to start testing the market with, at the same time everyone needs to bear in mind that there is a lot of room for further improvements from many aspects. The results of the evaluation are confirming that the partners are on a very similar standpoint since most of them gave 4 points out of 5 when evaluated the whole created route (figure 23). On one hand, 4 on a five-grade scale is a good grade, which shows that the partners are basically satisfied with the designated route, on the other hand, it is not the highest grade which refers to possible deficiencies.

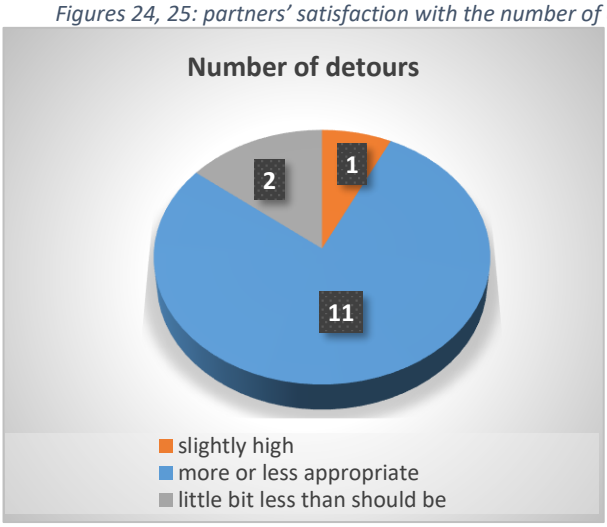
Figure 23: Partners' satisfaction with the designated final route of Amazon of Europe Bike Trail on a 5 grade scale (1 – not satisfied at all; 5 – totally satisfied)

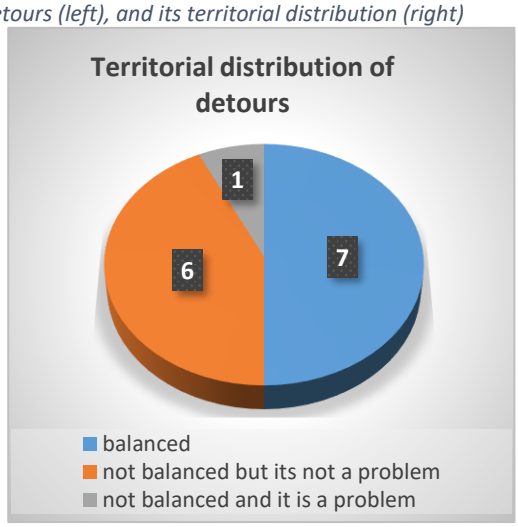


The basic structure of the route (there is a main route with many additional routes – detours) found acceptance by the partnership, even though in many cases during the route planning,

it required compromises from their side. In terms of the number of the detours, the partners are basically satisfied. According to the opinion of their vast majority (11 regional coordinators) the number of detours along the bike trail is appropriate, while the rest of them (3 coordinators) think that it is slightly less or more than it should be (figure 24). There was no answer pointing at the need for a drastically different number of detours than the trail currently has. Regarding their territorial distribution, partners are completely divided. There are regions where the route contains many detours, elsewhere only a few can be found, while in certain sections there are no detours at all. Half of the regional coordinators think that the territorial distribution of these elements is balanced in its current form, while the other half do not, but consider this unbalanced distribution acceptable (figure 25).

Figures 24, 25: partners' satisfaction with the number of detours (left), and its territorial distribution (right)





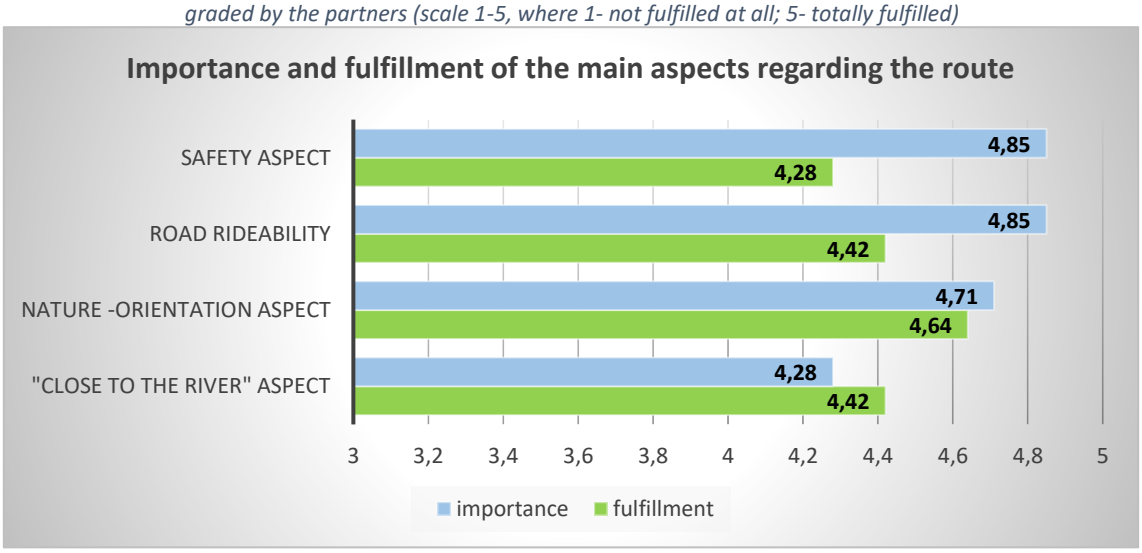
Partners had to classify the four main topics of the methodology used for the designation of the route. Based on the given grades, the following order of importance can be described (figure 26).

At the top of the list (with the same average points) the topics of safety and road rideability can be seen as the most important ones. Safety primarily means the avoidance of roads or sections with high motorized traffic in general, particularly the high traffic roads without speed limit. Rideability is basically in connection with the surface of the roads. The involved roads must be suitable for cycling, ensuring the highest possible comfort level for the cyclists, and reducing the risk of technical problems caused by bad road surface conditions. According to the opinion of the partners, above all, these criteria need to be fulfilled. Nature-orientation aspect is listed right behind them, this is the reason why (at least) 2 mandatory riverview points per stage was included as a criterion in the route planning methodology. "Close to the rivers" aspect ranked below the previous factors, that means partners are lenient if the route moves further away from the rivers in some sections, in order to ensure the fulfilment of the above written other aspects.

In addition, the successful fulfilment of these factors regarding the whole route has been also graded (from 1 to 5) by all partners. In comparison with the above written importance list, one of the most important factors, the safety aspect prevailed the least, according to the opinion of the regional coordinators. Fortunately, the situation is not tragic at all since this category

only received 4 and 5 grades, but the dominance of 4 points caused the lower average point. Partners certainly feel that roads with higher traffic are part of the trail in some areas, which is basically true, but the reason behind of the involvement of these road sections was the complete lack of alternatives. The nature-oriented segment of the route is evaluated as very strong, which cannot be called disadvantage knowing the main concept of the Amazon of Europe Bike Trail.

Figure 26: The importance of the main factors of the route planning methodology – average score, graded by the partners (scale 1-5, where 1- not important at all; 5 – very important); compared to the successful fulfillment of these factors – graded by the partners (scale 1-5, where 1- not fulfilled at all; 5- totally fulfilled)

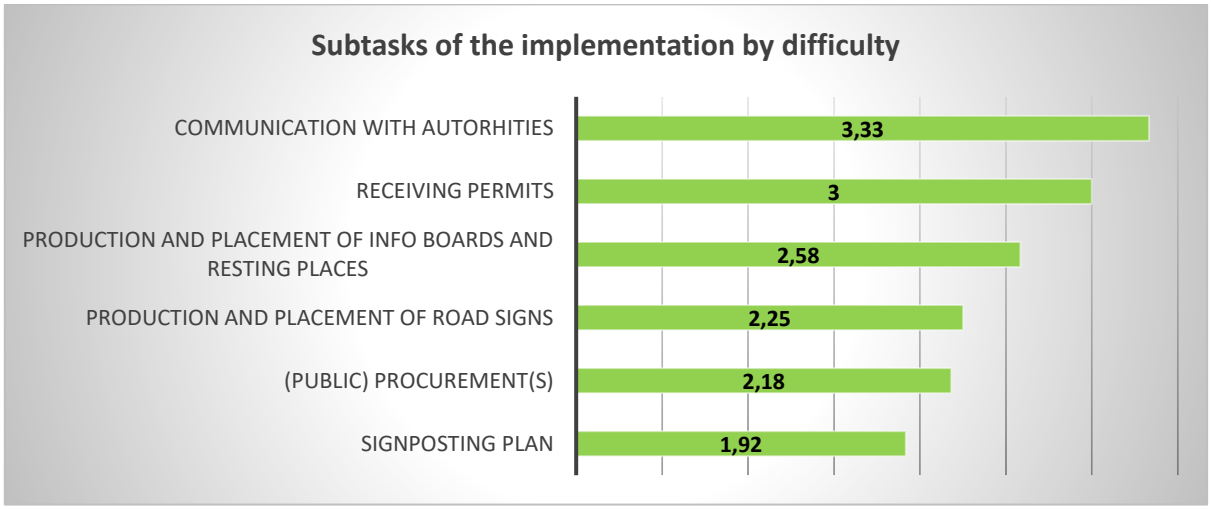


There are no complaints against the number and average length of daily stages (27). Regarding those settlements that were defined as stage points (start and end points), the received grades reflect high level of satisfaction as well. Although, some partners are not completely pleased with the selected start/end points since most of the given scores was 4 in this case. The questionnaire asked the partnership to evaluate how difficult was to find appropriate stage points by using the common methodology, and then to define the route linking these places. Results reveal that the selection of the start/end points was the easier task of the two, even though it was challenging in some region. It was particularly true in case of river Drava, which is the borderline between Croatia and Hungary. Due to historical and geographical reasons, the network of settlement in the vicinity of the rivers is dominated by villages, majority of the larger cities are situated in a distance. Moreover, only few of the settlements is located directly on the riverbanks. Considering these circumstances, finding the required services (accommodations, restaurants, bicycle related services) which makes a settlement an appropriate stage point, was not every time easy. The bigger challenge was to choose the best route between the stage points because the task needed to be approached in a complex way, several factors had to be considered at the same time, but the elaborated methodology seemingly helped the regional coordinators during the route planning.

After the planning was ended, the implementation of the planned content became the main task of the regional coordinators in relation to this work package. Route implementation is consisted of many subtasks that the partners had to face with throughout the process, and after everything has come to an end, they graded the level of difficulty of each work phase

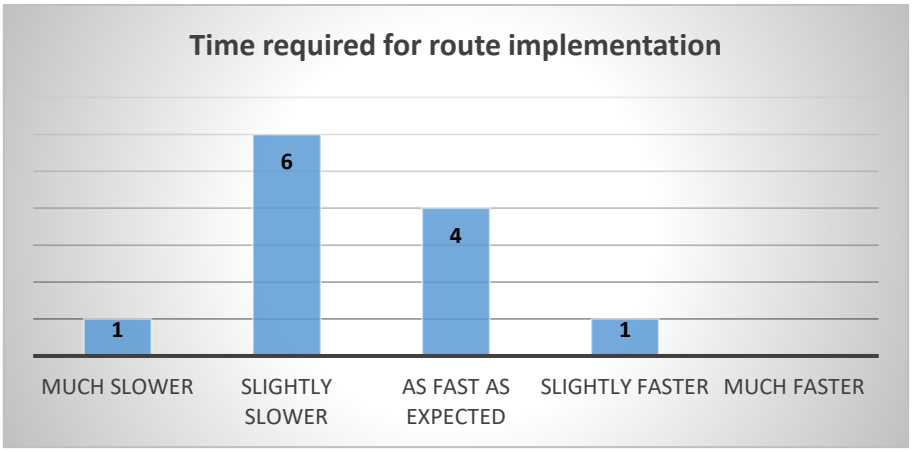
(figure 27). Elaboration of the signposting plan was described as the less challenging task; every partner could find external expertise for the elaboration of the document without major obstacles. Finding a competent company for the production then the placement of the related infrastructure on the field was a bit more difficult. Some partners faced the limited number of operating companies dealing with traffic signs, furthermore the current market situation raised the prices and slowed down the process in many areas since the firms were overloaded. Besides the signs, the production of other types of infrastructure elements was particularly challenging, due to the design of the info boards and resting places can be considered unique in many senses. Not every company had the needed technological background and capability to produce these elements in accordance with the defined common design, therefore some partners was really struggling to find a capable entrepreneur. According to the experiences of the partners, communication with the relevant authorities then receiving the needed permits were the most difficult phases of the route implementation, more than half of the regional coordinators had issues regarding this topic. Contacting with them was essential hence the infrastructure elements (signs and others) intended to be placed, needed to be fully complied with the national standards and regulation of the countries. This process was very time-consuming in many countries.

Figure 27: partners' opinion on each subtask of the implementation by difficulty. (Average point of the given scores on a scale 1-5.; 1 -was not difficult at all; 5- was very difficult)



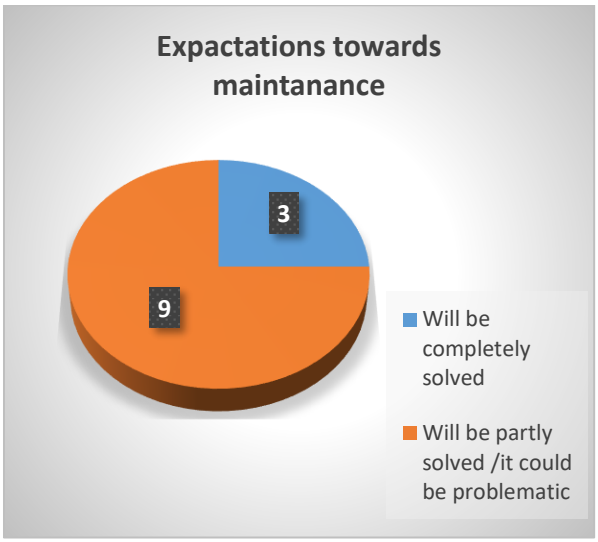
On the whole, the required time to complete the route implementation exceeded the expectations of the partners, therefore several of them could finish late with the needed works. Besides the above-mentioned time-consuming production of infrastructure elements, long public procurement(s) can be named as main reasons behind the delays (figure 28).

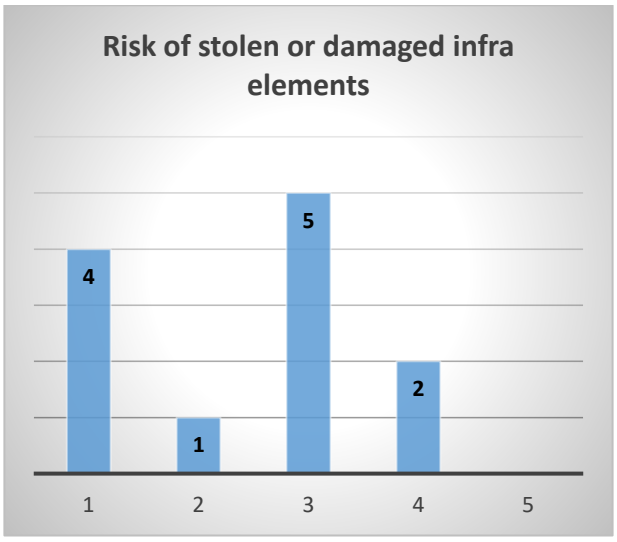
Figure 28: Regional coordinators' opinion on the speed of route implementation process compared to their expectations (on a 5-grade scale)



Maintenance of the route together with the implemented infrastructure will be highly important for the future of trail. Performing this task will not always be easy and will bring challenges in many cases. Three quarters of the regional coordinators are not sure that all the needed maintenance related tasks will be fully covered in their respective region (figure 29). In terms of route maintenance, there are some factors that constantly need to pay attention for. These treats are coming from both the nature and human sides. In the cases of unpaved routes, cutting the weed and grass will be a regular task, as well as removal of fallen branches, trees from the roads regardless their surfaces. Furthermore, flood will be regular issue as well, since the trail is focusing on the rivers, often goes through floodplains, the conditions of dirt roads can quickly become unfavourable after heavy and frequent rains. These situations will surely occur therefore need to be prepared in advance, in order to be able to solve them as quickly and effectively as it is possible. The fact that the route often uses roads and paths that motorized vehicles are not using at all, managing to fix these problems in time might be even more challenging. As human factors, the partners mentioned that the lack of human and financial resources can easily affect maintenance related tasks in a negative way, rarely happening road reconstructions might conserve the bad conditions of certain sections. The risk of stolen, intentionally, or unintentionally damaged infra elements seem to be a real issue, regional coordinators shared their opinion regarding this question. None of them ruled out that these kinds of acts could occur in the future, majority of them were especially not too optimistic when answered the related question of the evaluation (figure 30).

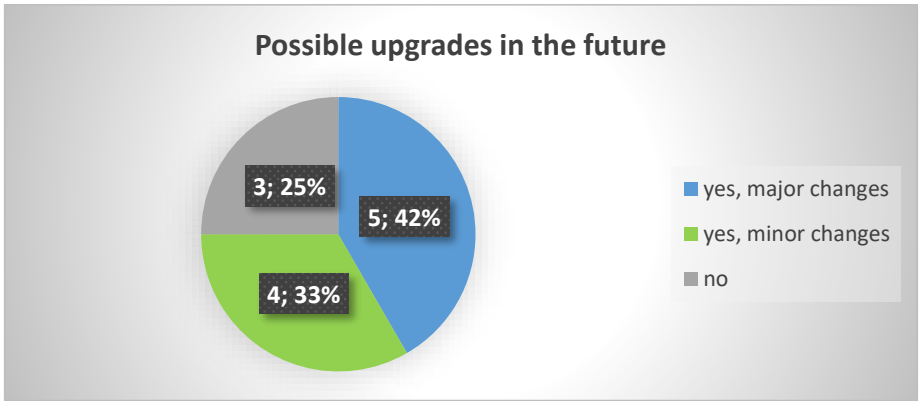
Figures 29, 30: Expectation of the partners on the route maintenance (left); Opinion on the partners regarding the amount of risk of stolen or damaged infrastructure elements in their respective region (on a 5-grade scale. 1 – huge risk, 5 – no risk at all - right)





Regional coordinators having very mixed expectation about the possibility to upgrade the route in any sense in the following few years. Only 25 % of them think that the route in their region will be remain exactly in that form as now it is. 75 % answered that changes expected in the future, and 5 partners said it is imaginable that significant changes will happen regarding the trail in their region (figure 31). There might be multiple reasons behind these answers. On the one hand, they might feel that improvement is needed in some sense, and their answers are reflecting this. Even though they do not really know how, but some changes should happen. On the other hand, there are clear and exact plans in many regions, and already ongoing investments as well which will give the opportunity to make the route better in the near future. It is already known that new roads are constructing in certain regions meaning upgrade possibilities for the trail, therefore regional coordinators have the intention to change the track as soon as these investments implemented.

Figure 31: Opinion of regional coordinators on the possibility of upgrading the route in their respective region in the near future



The experience of regional coordinators on stakeholder involvement was very different at each stage of the project. They reported that it was easier and more effective at the early

stages, and gradually became more and more challenging, at last meant real difficulties during the last phase of the project to involve the stakeholders in appropriate number. This is well-visible on the related graphs showing the effectiveness of stakeholder and service provider involvement at the early then the later stage of the project (figures 32, 33). None of the regional coordinators felt this activity too hard during the route planning, the worst given grade for the difficulty was 3, while only two of them could tackle this task in an easy way at the last phase of the project, four partners had major problems with it during the AoE Bike Trail Academy and evaluated it ineffective.

At the beginning, the general level of interest of the stakeholders was higher, everyone was open, seeking how to benefit directly or indirectly from the participation. Then later it was particularly difficult to reach those actors who decided to not participate in any form in the Amazon of Europe Bike Trail, therefore their motivation level drastically dropped down.

Figure 32, 33: Opinion of the partners on how effective the involvement of stakeholders/service providers was in different stages of the process. Left: during route planning (early stage); Right: during the AoE Bike Trail Academy (late stage). On a 5-grade scale. 1- it was very ineffective; 5- it was very effective

2.4 Evaluation of the work package 6 (WPT4) – Valorisation Programme

WP Leader: WWF Adria

This work package focused on the valorisation of the protected areas within the UNESCO 5-countries biosphere reserve. The development of a transboundary concept was the main aim which ensures certain amount of the income of the Amazon of Europe Bike Trail for nature protection purposes. The first step was to define how to support projects in the topic of nature protection within the target area (describing possible methodologies), then the second step was to select which project should be supported. Furthermore, the developed concept had to be harmonised with the affected nature protection areas, responsible authorities, and relevant NGOs. Workshops with the affected actors in each country were the tools to successfully reach this goal.

2.4.1 WP leader summary

In the opinion of the WP leader WWF Austria, the whole process was implemented according to the project proposal, except the part where in person workshops had to be replaced by on-line events, due to the pandemic. It possibly had a negative effect on the number of inputs and received comments. From the preparation at the beginning of the project, until the developed valorisation programme, the work package leader really made an effort to search for the right consultant, then to implement the workshops and at the end to finalize the valorisation programme to the best possible extent while having in mind nature and people. Participation of NGOs and nature organizations could for sure be higher.

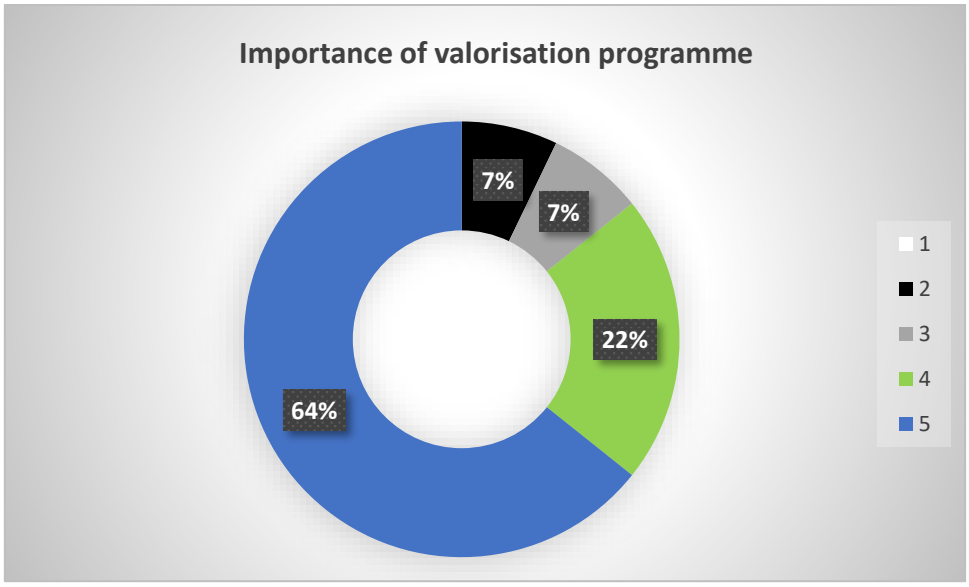
The connection between the valorisation programme and the organizational background (DDO) should be clearer. To agree on the percentage of the income dedicated for nature protection caused difficulties, even at the end of the project. The initially proposed 5 % was advised to be lower by partners who has experience in this regard. The relevance of a lower rate might be higher at the start since very limited profit (or no profit) is expected in the beginning, but after a couple of years the 5% (of income) should be applied, as it was communicated during the workshops. If not, there will be so little benefit for nature and giving back to nature. This percentage can be considered as an amazing opportunity to raise awareness about species and habitats of the area and this part is of utmost importance. There might be people who will have the willingness to donate funds for the implementation of conservation project after cycling the trail, so the Amazon of Europe Bike Trail is an amazing opportunity for conservation of nature, but even more for „conservation" of more traditional way of living and close connection to Mura, Drava, and Danube rivers.

The success of the valorisation programme is dependent on the success of the AoE Bike Trail, without it cannot be functional. Therefore, it needs to have high number of visitors that means income, so its certain % can go for some conservation actions. Other challenge might be to find a fine rate which is acceptable for all sides at the start. It is very important to have the exact percentage in the „statute" of the DDO since the project itself planned for the valorisation programme.

2.4.2 Results of the evaluation

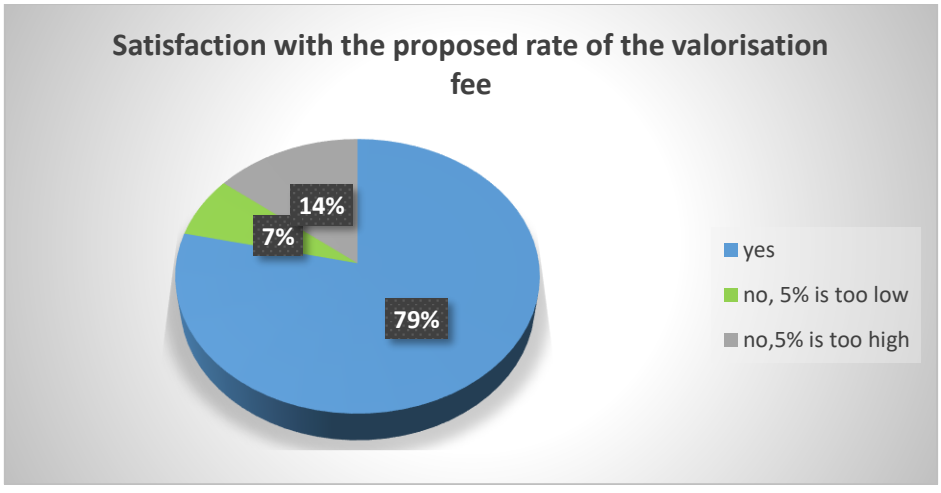
The role of the valorisation programme has been rated as highly important in terms of the future success of the Amazon of Europe Bike Trail product and brand (figure 34). "Giving back to the nature" is one of the main principles behind this responsible cycling product, and as a key sentence, it has a significant role in the marketing activities as well. It can be considered as a promise suggesting to tourists that they can have a real contribution to nature protection, and this can be a factor to attract them to cycle on the Amazon of Europe Bike Trail. In order to the product be able to maintain its authenticity, this promise need to be kept. So, a well-functioning valorisation programme can be the content that really makes this product unique and outstanding in comparison with other similar trails.

Figure 34: How important is to successfully apply the „giving back to the nature" principle, as part of the AoE BT product – according to the regional coordinators (1- not important at all; 5 – very important)



As it was mentioned, after every realized booking regarding the Amazon of Europe Bike Trail, certain amount of valorisation fee has to be paid, which is dedicated for environmental protection and nature conservation within the territory of the 5-countries biosphere reserve. Although most of the regional coordinators consider this 5 % appropriate (only three of them think this rate is too high or should be higher; figure 35), it was a subject to debate during the project. This rate is a highly important question in multiple aspects, with possible impact on the future of the product. If this rate is too low, it will not be enough for the valorisation programme to make a significant contribution to impactful initiatives in the Amazon of Europe area. At the same time, the product needs to be sustainable in financial point of view as well, if the valorisation fee is too high, covering all the related expenditures might be questionable. So, in terms of the business model, the rate and amount of the valorisation fee need to be well-conceived.

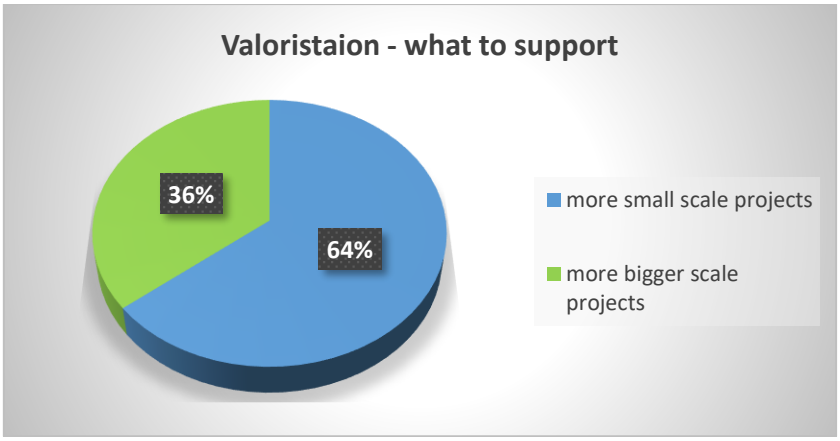
Figure 35: Satisfaction of the regional coordinators about the proposed rate (5%) of the valorisation fee



The question arises how to use the collected amount for nature protection, what are the specific topics should be financed, and small-scale or rather larger-scale projects should be supported in frame of the valorisation programme.

Majority of the partners is of the opinion that supporting more but small-scale (budget: 3-5000 EUR) projects seems to be much more feasible, especially at the early stage of the AoE BT product in the market (figure 36). Furthermore, the preference of smaller but more projects could help keeping the distribution of these reflows in a territorially more balanced way. More regions could benefit from it at a certain level, which would reduce the possible tensions regard to this topic. 36 % of the regional coordinators would prefer to support larger-scale projects since financing a few, but more ambitious initiatives with more spectacular results might be advantageous from marketing point of view as well. It would be favourable for the trail, the brand, and the valorisation programme itself, because cyclists could see even more clearly how they contributed to the nature conservation of the Amazon of Europe area. Partners see the situation optimistically in their respective region, they believe that local organizations in the field of nature protection are showing considerable interest to cooperate in frame of the implementation of the valorisation programme.

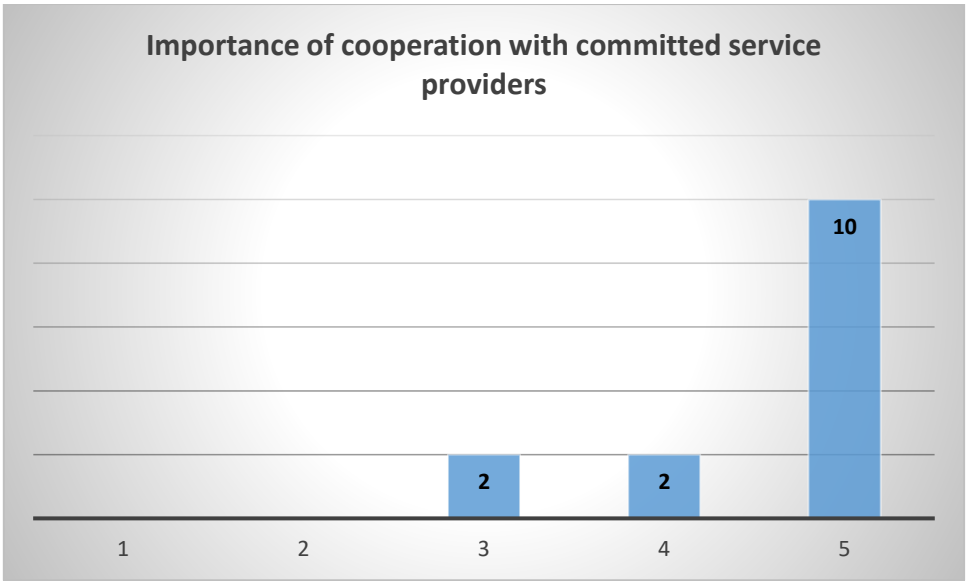
Figure 36: Partners' opinion on what scale of projects should be supported in frame of the valorisation programme



In order to the trail be bookable, different kind of service providers have joined to the product to providing accommodations or other services along the trail. Even though there were dominantly cycling related criteria they needed to be fulfilled, joining was open for everyone, did not happen any selection. It is completely acceptable in case of building-up a brand-new product. The question is, at a certain point in the future, should it be put more emphasis on selection based on their nature-related approach. How much environmentally conscious, responsible for the local society and nature they are, and in what form is this putting into practice.

According to the opinion of the regional coordinators, the commitment of the contracted partners would be important, as well as certain level of selection among the available providers. (If there is a room for selection, of course.) 10 partners answered this is very important (figure 37). The booking center should prefer to cooperate those service providers who can identify with the main principles behind the Amazon of Europe Bike Trail: focusing on nature (protection), bicycle friendly attitude, responsible thinking and acting in the daily operation.

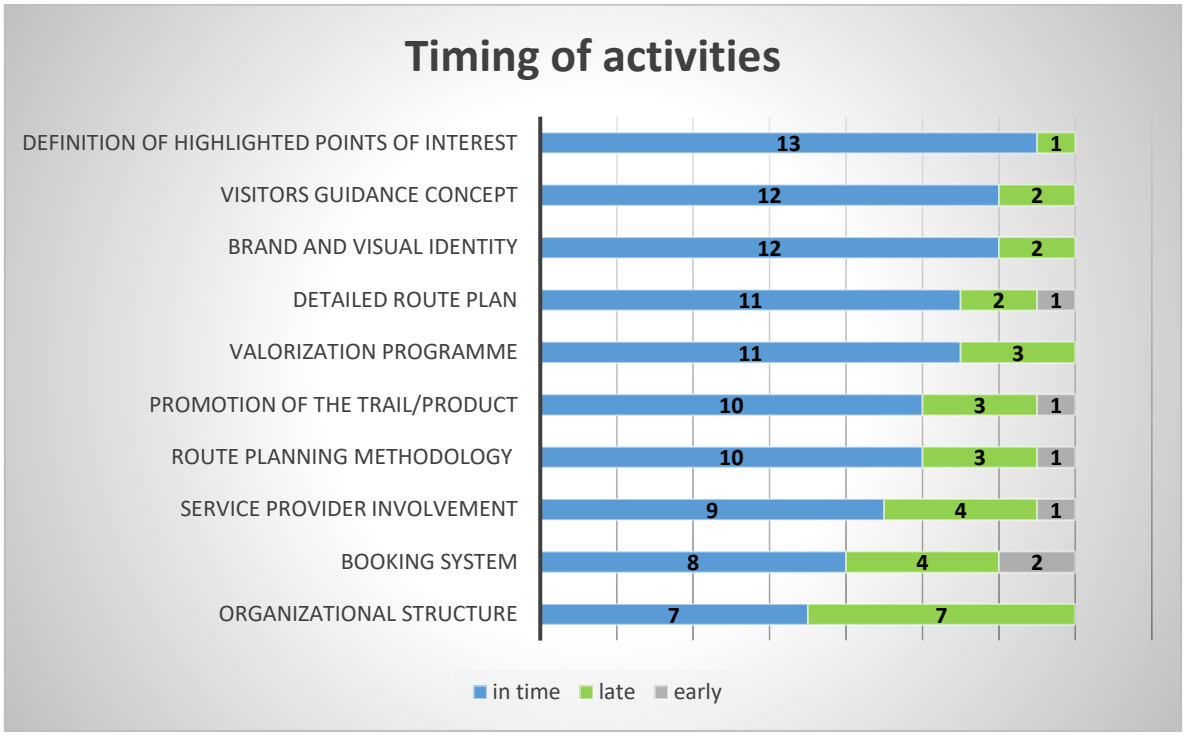
Figure 37: Importance to cooperate service providers can identify with the main principles of the AoE Bike Trail (5 grade scale: 1- not important at all; 5-very important)



2.5 Timing of the activities – result of the evaluation

Considering the fact that activities within a work package are building on each other and often tasks between the work packages are also strongly connecting, leaning on the outcomes of another ones, it is very difficult to define an optimal time plan including all the processes need to be implemented within a short available period of time. Due to the limited timeframe, it is obvious that multiple activities have to be progressing in parallel. In any case, taking a look at the experiences of the Amazon of Europe Bike Trail project regarding the required timeframe of certain activities can be instructive, since some processes took much more time than was expected initially, or could not be completely done by the end of the project. Certain activities from all the work packages have been evaluated by the partners based on how they felt, which was in time, which would have required more time, or would have started sooner to be completed in a better way. Despite of the three possible options, the number and proportion of the answers “in time” is worth to comparing to the other two together in the graph below (figure 38). It shows which activities are considered more problematic by the partners in terms of timing. Less surprisingly the WP4 related activities (visitors guidance concept, visual identity) can be found on the top of the list, they generated the least concerns. This work package was finished firstly, everything could be completed in time. On the contrary, regional coordinators did not feel the time enough that was spending for the product development related tasks, such as development of the organizational structure or the booking system. Similarly, the contracting of the service providers could have happened in a more effective way if the activity started at an earlier point.

Figure 38: Timing of certain activities within the AoE BT project



3 Synergies and cooperation opportunities with other initiatives

In the process of preparing the document, we found out that conducting interviews was not necessary for a quality insight into the achievements of individual DTP projects, because the relevant material is freely accessible and meaningful and appropriately placed on the website of the DTP programme. Thus, the relevant contents of other DTP projects in connection with the development of tourism were collected based on desk research.

Several other DTP projects exist that offer the results that could be meaningfully used directly or slightly modified and utilized by the AoE project. For example, existing cycling routes and cycling infrastructure can be included as a part of AoE Bike Trail. Next, the various attractions could enrich the AoE Bike Trail offer (e.g. historical monuments, visitor centres or river schools) and can be included in the cycling packages. Such offerings will be added to the on-line booking system in the future products. Also, other DTP project offer several mobility guidelines that were considered when designing AoE route within the project. For example, project LENA developed the network of specialized guides striving to share know-how and experience for sustainable economic development in protected areas through enhancing sustainable income generation from wild plants, fishing-based livelihoods, added value sustainable agriculture, regional tourism marketing, training Danube tourist guides across borders, and sharing know-how on e-mobility. These guides will be included in the AoE products and services network in the future.

In the continuation we present some of the projects that offer initiatives and products that could be integrated into AoE project.

3.1 EcoVeloTour

EcoVeloTour	
Start date	01-06-2018
End date	30-09-2021
Budget (EUR)	2.117.177,58
Call no.	2
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

EcoVeloTour facilitates the development of sustainable tourism in the Danube region along EuroVelo routes via enhanced, conscious and ecologically sound framework of tourism destination management and extending cyclist tourism, unfolding neighbouring regions beyond the EuroVelo route. EcoVeloTour establishes transnational tools for ecotourism development and management: enhanced framework for ecotourism development and mobility planning guidelines, transnational market research, policy recommendation, ecotourism mobile application and e-learning platform.

Identified synergies:
Findings of the following documents have proven to be very useful for AoE Bike Trail replication in Central and Eastern Europe territories:

- Guidelines for ecosystem services based ecotourism strategy
- Strategy for developing cycling tourism and ecotourism along the Rákos-stream, considering applied ecosystem services

Assessment of ecosystem services methodology could be adjusted and implemented in the whole AoE area or some specific territories.

3.2 REDISCOVER

REDISCOVER	
Start date	01-06-2018
End date	31-05-2021
Budget (EUR)	1.846.346,45
Call no.	2
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

This project helps creating competitive advantages for cities with otherwise scarce Jewish cultural heritage attractions. The main objective of the project is to explore, revive and present the hidden intellectual heritage along with locally available Jewish cultural heritage of project partner cities. That can create a jointly presented, synergistic tourism tool/service that is accessible to the wide audience as well. The involvement of locations with different historic economic background also enables the creation of solutions applicable for various other contexts, supporting transferability. Key outputs, like Joint Visibility Strategy, or Community–sourced Jewish Cultural Heritage Valorisation Handbook help to replicate the initiative in further cities of the Danube Region.

Identified synergies:
Rediscover project offers interesting insights and perception of cultural heritage that has not yet been considered by the AoE. New target groups will be thoroughly analysed and based on the specific demands and requirements the project will identify Jewish heritage sites along AoE Bike Trail and incorporate them into AoE product.

3.3 URBforDAN

URBforDAN	
Start date	01-06-2018
End date	30-09-202
Budget (EUR)	2.788.566,61
Call no.	2
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

URBforDAN is designed to deliver a change in urban forest management and utilization of ecosystem services. They are provided by pre-selected areas in seven project partner cities. The project is intended to keep the current image of urban forests and to make sure that the forest areas become places for socialization, relaxation, recreation and education. Also, a high-quality experience of natural heritage and green tourism for a diverse set of target groups has

to be ensured. URBforDAN aims to improve cooperation between key actors to resolve conflicts and improve management of urban forests. At the same time, it aims to enrich "green tourism" in Danube Cities through new and improved services and products, accessible on over 700 hectares of urban and peri-urban forests.

Identified synergies:

In combination with EcoVeloTour the project URBforDAN can serve as a ground point offering methodological approaches and toolsets, such as:

- Ecosystem Services Mapping and Valuation Methodology for UPF (urban and peri-urban forests)
- Participatory Approach: URBforDAN Guidelines on Participatory Approach
- URBforDAN Capitalization Strategy

Both, AoE and URBforDAN foster participatory approach, which will be kept as a crucial aspect in all following activities. URBforDAN approaches complement AoE "modus operandi" in realization of participatory product development.

3.4 Danube GeoTour

Start date	01-01-2017
End date	31-12-2019
Budget (EUR)	1.666.362,5
Call no.	1
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

The project strives is to improve management capacities and strategies and to develop practical solutions for the activation of geodiversity/geoheritage and to seize positive market trends for sustainable tourism development in 8 Geoparks of the Danube region. The main project result is joint Danube GeoTour designed to strengthen cooperation between the regions' Geoparks and act as an innovative tourism product to accelerate visibility and tourist visits in the geoparks. Common strategy for sustainable management of tourism pressures forms the basis for creating innovative geoproducts. Sharing experiences, testing pilot geotourism products and new interpretative approaches should increase local inhabitants' engagement, Geopark management capacities and lower the quality gap between Danube and other European Geoparks.

Identified synergies:

Geological heritage is very important aspect, which is not adequately addressed in Mura, Drava and Danube area and thus represents an important area that will be considered in the future taking into account the following documents and approaches:

- Strategy on management tourism pressures in Geoparks
- New competences in GeoHeritage interpretation
- Guideline for development of innovative GeoProducts
- Gamification tool

3.5 ART NOUVEAU

ART NOUVEAU	
Start date	01-01-2017
End date	30-06-2019
Budget (EUR)	1.649.559
Call no.	1
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

Throughout the Danube region, Art Nouveau is a defining feature of many urban landscapes. Art Nouveau movement in this area mainly stemmed from the Viennese Secession, prevalent and influential in urban planning and architecture at the end of 19th – beginning of 20th century. Secession monuments are generally revered as jewels of architecture, craftsmanship and art. Yet, their potential for becoming sites of vibrant communal life, as well as tourist attractions is often left unexplored and unrealized. As Art Nouveau is present in urban setting in many countries, it possesses cohesive force for connecting them. The partnership of 10 partner organizations from 7 countries in the Danube region recognized this potential. Responding to the needs for sustainable and harmonized protection, revitalization and promotion of Art Nouveau, this partnership devised a series of interconnected cross-sectoral activities covering the full cycle of its protection and revival.

Museums and institutes for protection of monuments undertake scientific research of roots and forms of expression of Art Nouveau, enhance its physical conservation and ensure its preservation in a digital form. Urban planning institute and municipalities elaborate fact-based policy recommendations for protection and rehabilitation of Art Nouveau as well as its successful functional and aesthetic integration into urban setting. Complemented by carefully devised promotional activities and campaigns on local, regional and (inter)national level, such combination of activities ensures sustainable management and revival of Art Nouveau heritage. As a result, its values and monuments are revered and cherished by inhabitants, tourists and future generations instead of being lost to them as relicts of the past. Apart from its immediate and palpable results, this project ultimately achieves an invaluable one: harnessing cohesive potential of the Art Nouveau cultural heritage in Danube region.

<u>Identified synergies:</u>
Art Nouveau represent an interesting perception on cultural heritage that will be analysed and included into AoE offerings. The following document will be taken into account:

- Strategic document for the protection and promotion of AN heritage in the Danube region

An interesting potential is also the development an Art Nouveau cycling and culture bike route.

3.6 ARTNOUVEAU2

ARTNOUVEAU2	
Start date	01-07-2020
End date	31-12-2022
Budget (EUR)	1.827.119,5
Call no.	3
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

The project is a continuation of the ARTNOUVEAU project, successfully implemented in the 1stCfP of the DTP. The partnership, enlarged in this project, achieved notable results in creating transnational professional cooperation in the field of Art Nouveau (AN). It also identified challenges faced by the communities sharing AN cultural heritage.

AN certainly is part of the history and everyday life of the cities in the Danube region (DR), and hopefully, it will be integral part of its future. As AN movement contributed to shaping cultural identity of the region, it can be used as a cohesive force for bringing many communities together. As visions of the AN movement dictated many aspects of urban life, they can be used to develop new policies for the cities of today and tomorrow. As AN monuments abound with breathtaking splendor, beauty and display of craftmanship, they can be used to make the region recognizable and more attractive to tourists.

ARTNOUVEAU2 embarks on responsibly and sustainably using the AN cultural heritage as a vehicle for strengthening regional cultural identity and for stimulating economic growth in the DR. To succeed in this, the partnership increase the level of knowledge related to AN in the general public through educational activities, prompting the public to respect, appreciate, protect and take better care of the AN heritage. Also, the project develops professional community specialized in AN from the DR and strengthen the institutional framework which will better protect, manage and promote the AN. This, in turn ensures growing appreciation of the local public for the AN heritage and increase its attractiveness to the tourists. Furthermore, the project professionalizes tourist promotion of AN through involvement of tourism industry, contributing thus to the diversification and improvement of tourist offer and services of the region, which can result in economic growth, generate income and stimulate job creation.

<u>Identified synergies:</u>
Artnovou 2 project builds on Art Novae, but on a bigger scale. As the project is still ongoing, we will carefully and closely observe the progress and utilize any potential outcomes that could be used in future AoE bike trail products development.

3.7 LENA

LENA	
Start date	01-01-2017
End date	30-06-2019
Budget (EUR)	2.456.290,72
Call no.	1
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

LENA (Local Economy and Nature Conservation in the Danube Region) is connecting nature and people for well-being and prosperity across 7 Danube countries and 11 protected areas. The project shares know-how and experience for sustainable economic development in protected areas through enhancing sustainable income generation from wild plants, fishing-based livelihoods, added value sustainable agriculture, regional tourism marketing, training Danube tourist guides across borders, and sharing know-how on e-mobility.

Selected protected areas, covering more than 375,000 ha and more than 15 Natura 2000 sites, are chosen based on outstanding nature values and untapped potential for sustainable economic use. The project covers approximately half a million people, most of them living in communities with low economic status, struggling with out-migration and ageing population. Project works on creating shared know-how and shaping policies on effective sustainable use approaches for protected areas through developing 4 guidance documents and policy recommendations. Project partners are experts in local economic development, experts in nature protection and green solutions, local authorities and protected area managers from Bulgaria, Croatia, Hungary, Germany, Romania, Serbia and Slovenia.

<u>Identified synergies:</u>
Both projects, LENA and AoE have a common project partner, namely West Pannon Regional and Economic Development Public Nonprofit Ltd. Thus, LENA project and its' outcomes have been carefully analysed and considered during the implementation of AoE project and the synergies have already been taken into account. LENA offers Danube Guides, which is an association of partners from six European countries and guest and nature tour guides with the goal to protect and promote natural heritage and cultural treasures along the Danube and to preserve the environment. Based on a set of common quality criteria, Danube Guides from Germany, Slovenia, Croatia, Serbia, Bulgaria and Romania have been educated and follow a general approach of sustainable development. The selection of the trainees was carried out in an open and criteria-based process. These guides have been developed for experiencing nature and culture along the Danube. The project conjoined experts and experienced guest and nature guides to offer unique experiences with all senses and a variety of tours and offers for locals and visitors, children and adults or sport enthusiasts such as hiking tours, historical and cultural walking tours and adventurous offers such as canoe or cycling tours. These guides will be part of the network of service providers for the bookable AoE Bike Trail and future tourism products in the AoE area.

Additionally, the following documents have provided us with an important and useful insights and will be incorporated into future strategic development of the AoE destination as well as application of the AoE concept to other relevant territories:

- Tools for management of natural heritage: Mobilising finances for conservation, nature-based jobs and business models
- Tools for management of natural heritage: Increasing market access of sustainably sourced natural products
- Tools for management of natural heritage: Developing capacity for sustainable use of natural and cultural heritage
- Tools for management of natural heritage: Communicating to local people and visitors the value of nature

3.8 INSiGHTS

INSiGHTS	
Start date	01-01-2017
End date	30-06-2019
Budget (EUR)	2.308.170,55
Call no.	1
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

To find solutions on how to make regions more attractive to tourists 13 partners from Austria, Bulgaria, Croatia, Germany, Hungary, Romania, Serbia, Slovakia, and Slovenia have joined forces in the INSiGHTS project – Integrated Slow, Green and Healthy Tourism Strategies co-financed by the European Regional Development Fund and the Instrument for Pre-Accession Assistance.

Partners have been working in close cooperation with stakeholders in 8 regions to gain relevant local feedback on the current situation of tourism and also ideas and proposals for new opportunities for slow, green and healthy tourism. There have been 8 integrated sustainable tourism strategies developed by the partner regions being adaptable all across the Danube Region.

<u>Identified synergies:</u>

INSiGHTS offers various approaches and strategies to foster sustainable tourism that will be analysed and included into AoE offerings. The following document will be taken into account:

- Strategies for Integrated Development Concepts on Sustainable Tourism
- Collecting state-of-the-art good practices in slow, green and healthy tourism in the Danube region and beyond
- Integrated Sustainable Tourism Strategy Guidelines

3.9 ISTER

ISTER	
Start date	01-07-2020
End date	31-12-2022
Budget (EUR)	2.067.958,95
Call no.	3
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

ISTER project firstly addresses the challenge of Roman heritage discontinuity, which reflects both in a territorial dimension related to a low level of investment and connection between heritage resources and local/ regional productive sectors, as well as in visualisation and attractiveness dimensions regarding the promotion and awareness raising on the importance of heritage resources as drivers for regional development. Stepping further the isolated/ detached Roman settlements heritage, ISTER tackles the territorial dimension of the Roman Routes, as a contiguous transnational element that passes DR states' borders and provides a relevant scale for exchange and joint development. Therefore, ISTER's main objective focuses on rediscovering and revitalizing the ancient Roman Roads Network along the DR as a key driver in promoting territorial development based on sustainable use of cultural and natural heritage (specifically, Roman routes). ISTER promotes this Roman roads and settlements network as a catalyst for touristic development, as well as an opportunity for territorial competitiveness and sustainable growth of Danube crossed-regions.

Identified synergies:
ISTER project is an ongoing project, thus, we will carefully and closely observe the progress and utilize any potential outcomes that could be used in future AoE bike trail products development.

3.10 Living Danube Limes

Living Danube Limes	
Start date	01-07-2020
End date	31-12-2022
Budget (EUR)	3.151.121,2
Call no.	3
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

Fostering a common bond in the Danube Region via heritage shared by all Danube countries is the main aim of the Danube Transnational Programme project "Living Danube Limes". The Roman Danube Limes heritage and the Danube itself connect Central Europe with South-Eastern Europe and Living Danube Limes to enhance that connection by highlighting the common heritage and the potential it holds for future development.

Living Danube Limes strives to foster a common Roman brand for the Danube countries, pave the ground for a Cultural Route spanning the whole Danube Region, develop strategies for

preservation and management of cultural and natural heritage and foster green and sustainable tourism development.

Identified synergies:
Living Danube Limes project is an ongoing project, thus, we will carefully and closely observe the progress and utilize any potential outcomes that could be used in future AoE bike trail products development.

3.11 Transdanube Travel Stories

Transdanube Travel Stories	
Start date	01-07-2020
End date	31-12-2022
Budget (EUR)	1.502.950,15
Call no.	3
Priority	Environment and culture responsible Danube region
Specific objective	Foster sustainable use of natural and cultural heritage and resources

The project recognises sustainable tourism as another important option to use and preserve this heritage. European Cultural Routes and the other networks represented in this project set first steps to valorise these assets in that direction. Recognizing the vast cultural and natural heritage, the project Transdanube Travel Stories aims at supporting sustainable tourism in the Danube region by implementing innovative promotion concepts (new narratives) and sustainable mobility management tools.

The development of new narratives is the strategy to promote the Danube macro-region as touristic area. Single sites do not attract tourists, but linking selected sites to a story (along a trail) that can be experienced will create interest and lead to a Danube memory.
The integration of mobility management instruments (mobility managers, mobility centres, mobility plans) in institutional structures at route and destination level can make it easier for tourists to experience the new narratives by using environmentally-friendly means of transport and therefore limit the negative, transport related consequences of raising tourist numbers. The establishment of tourism product clubs at destination level and improved thematic and institutional linkages between the European Cultural Routes and other networks can strengthen the cooperation between the key actors and will increase their capacities to promote sustainable tourism in the Danube region.

New narratives and mobility management together with advanced institutional capacities can provide the framework to better position the Danube as a unique sustainable tourism destination on the market resulting in more European citizens experiencing European cultural and natural heritage in a sustainable way.

Identified synergies:
Transdanube Travel Stories project is an ongoing project, thus we will carefully and closely observe the progress and utilize any potential outcomes that could be used in future AoE bike trail products development.

3.12 Transdanube Pearls

LENA	
Start date	01-01-2017
End date	30-06-2019
Budget (EUR)	2.937.908,99
Call no.	1
Priority	Better connected and energy responsible Danube region
Specific objective	Support environmentally-friendly and safe transport systems and balanced accessibility of urban and rural areas

The central element of the project was the establishment of a network of destinations committed to sustainable mobility for tourists and inhabitants along the Danube which will support cooperation between different stakeholders from the transport and the tourism sector. This network increases the visibility of the participating destinations offering their visitors the unique possibility to travel the Danube with sustainable means of transport. The network of destinations aims at:

- Offering visitors the possibility to reach the Pearls without private car by better combining existing mobility services
- Allowing visitors to travel the Pearl with new and improved sustainable means of transport developed and tested in the project
- Providing the visitors with a sustainable option to travel to the next Pearl (or home)
- Providing user-friendly and easily accessible information on existing sustainable mobility services and tourism offers
- Empowering local and regional stakeholders to bring forward the concept of sustainable mobility in tourism beyond project lifetime

<u>Identified synergies:</u>
Both projects, Transdanube Pearls and AoE have a common project partner, namely West Pannon Regional and Economic Development Public Nonprofit Ltd. Thus, Transdanube Pearls project and its' outcomes have been carefully analysed and considered during the implementation of AoE project and the synergies have already been taken into account. For example, one of the main future challenges is how to connect bike trails with public transportation systems, which has been addressed and deeply anlyzed in the Transdanube Pearls, thus the gained knowledge could be applied also in the AoE future developments.

The project Transdanube Pearls is focused on sustainable mobility in the Danube region in general, hence the priniciples of developing socially fair, economically viable, environmentally friendly and health promoting mobility services for the visitors of the Danube region have been applied also in the AoE Bike Trail development. Consequently, these principles will be used in the future applications of the approach also in other relevant territories. The main relevant documents are:

- Guideline Combining Cycling with Public Transport
- Guideline Transnational Mobility Tourism Product
- Guideline Flexible Transport Systems

4 Transferability of the AoE model to other regions

The main objective of this chapter is to identify and shortly present those potential regions and areas where the AoE Bike Trail model can be transferred as a pilot initiative. Of course, the methodology should be modified and customised according to the local specialities of the identified areas, but the general background and features of the below mentioned regions are similar to the one of Amazon of Europe 5 Country Biosphere Reserve area.

The methodology of the selection process within the regions of the DTP programme area was based on 3 main principles:

- The region has a strong focus on nature protection – and rich in nature related values. The region has several national parks, the Natura 2000 protected areas, or preferably UNESCO biosphere reserves.
- The region itself has mainly rural characteristics – which means it has similar socio-economic background (decreasing population, deprived areas) as the Amazon of Europe area has. It is essential due to the positive and additional benefits, which are generated by the initiative – to increase the tourism incomes of the region and to valorise the local nature related values in a sustainable way.
- The region is located in cross-border areas – the cross-border and transnational aspect can be perceived in the area. If the transboundary administrative and institutional background is already given, the model could be adapted faster and on a simpler way, because the cooperation between the potential stakeholders is already on a proper level.

The objective of this document is to present the general socio-economic background of the selected areas briefly, according to the same set of data as it was in the Amazon of Europe Bike Trail project. The basic data set was created within the output 3.1 socio-economic analysis of touristic potentials elaborated by Iskriva:

- area (km2)
- number of inhabitants
- % of inhabitants of the respective country
- tendencies regarding the number of inhabitants
- basic labour market related data (unemployment rate)
- Basic touristic data (number of tourist arrivals, overnight stays, number of available beds, tourism entry points/international accessibility)

This analysis is focusing on NUTS 3 level, where the data was available – as it was collected within the WP3 document.

It is obvious that within the framework of the project comprehensive and deep analysis cannot be elaborated, it needs indepth analysis to know the pre-selected areas better. Nevertheless, this document is suitable to find similarities between the presented regions and the Amazon of Europe regions.

Thanks to the evaluation questionnaire and the given feedback by the partners, a thorough and focused research started to identify the potential territories where the basic background

and the territorial specifics are in line with the above mentioned 3 main principles of the WP7 roadmap for the replication and territorial uptake document. Several regions were mentioned and described in the evaluation form of WP7; such as Po River and its regions, Odera River and its area, or the beautiful river valleys in Albania, so the selection of the 3 regions was not an easy task due to the complexity of it.

Considering all aspects, 3 transnational regions were identified as suitable areas for territorial uptake of the Amazon of Europe model, concept:

- River Sava and its surrounding area
- Belarus/Poland/Ukraine/Slovakia transboundary area
- River Tisza and its surrounding area

4.1 River Sava and its surrounding area

Reasons for selecting this area: characteristic river, already strong institutional and international cooperation, protected areas, touristic potential (connecting 3 capital cities).

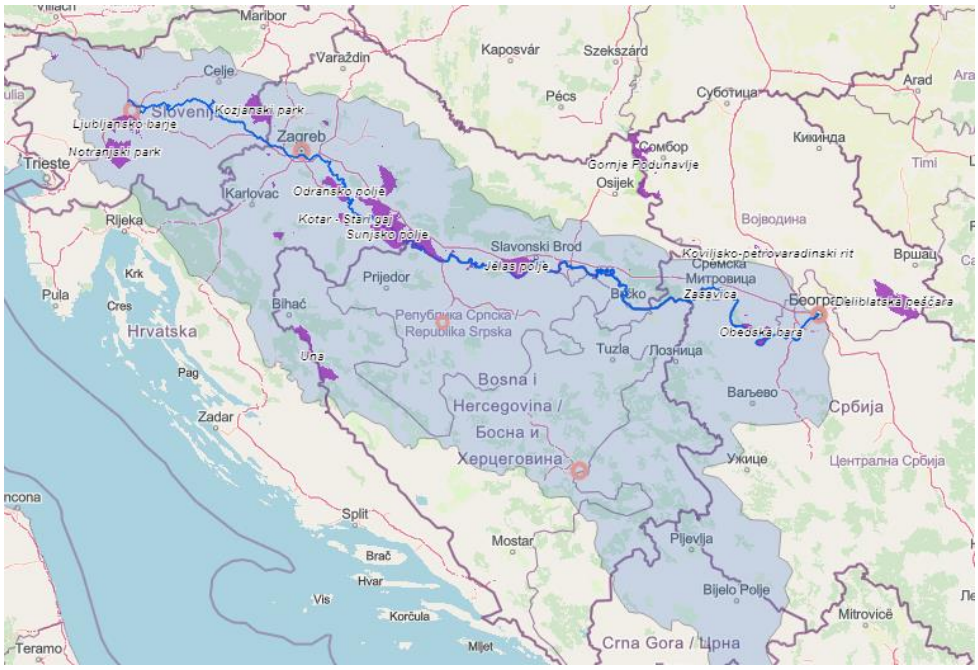
The River Sava and its surrounding area has a lot of similarities to the Amazon of Europe area. The River Sava is one of the most interesting and complex European rivers, additionally the „path of the Sava" is almost the same as the MDD rivers have – only 80 km is the distance between the 2 rivers. The Sava is formed by the confluence of two Slovenian rivers - the Sava Bohjinjka and the Sava Dolinka, where the Sava is only a few meters wide, but at the confluence area with the Danube in Belgrade, it is almost 300 metres wide.

Several protected areas can be found along Sava's 926-kilometre-long course – 64% of its surrounding territory is protected in various categories (altogether 23 nature protected areas) –, additionally the River Sava Basin is one of the best preserved and most diverse river systems in Europe. There is only one biosphere reserve area nearby along the River Sava. It's called Kozjanski Park, which is a regional park founded in 1981. Its total size is 206 km^2.

Picture 2: Kozjanski Park[1]

The Grgos caves[2] are one of the most beautiful caves of the Croatian northwest, which have been natural monuments since 1973. Both caves are relatively small in size, however, the magnificence of their speleothems makes them so amazing. Grgos cave is 52 m long and 19 m deep, the "new cave" is 97 m long and 14 m deep. Both caves are open for visitors, but it is very important not to touch or break the speleothems because these formations lose their splendour anywhere outside their natural environment, which is, of course, a cave. It takes millennia for nature to create something like this beauty, but only a single second to destroy it.

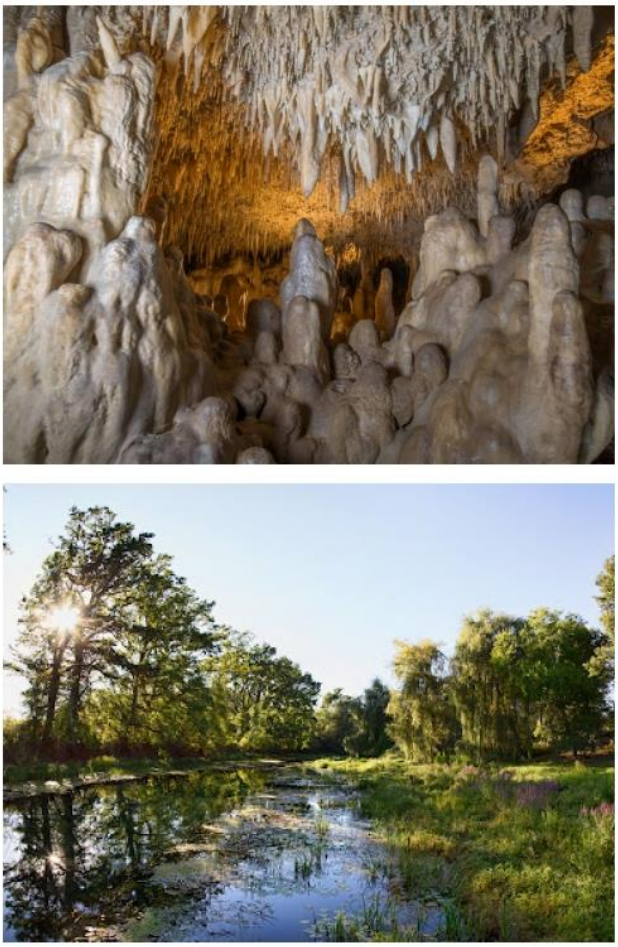
Picture 3: Specially protected areas along the Sava River[3]



[1] https://kozjanski-park.si/?page_id=1805&lang=en
[2] https://savaparks.eu/grgosova-spilja-grgos-cave-natural-monument-514
[3] https://savaparks.eu/map-of-protected-areas-7891

Significant landscape Turopoljski lug[4] and wet meadows along the River Odra are located in Croatia, on the border areas of Zagreb and Sisak-Moslavina Counties. The area of Turopoljski lug is included in the Natura 2000 ecological network under the names Turopoljski lug and Odransko polje, and they cover the area of around 140 km². The area of Turopolje and the Odra lowland is characterised by a high level of conservation of cultural heritage. Evidences can be seen throughout the area; there are numerous traditional wooden architectural pieces – residential buildings, farm buildings and sacral architecture in the settlements. A deep connection between man and his environment is also visible in the cultural landscape. The area of the significant landscape Turopoljski lug and wet meadows along the River Odra are especially important for the number and diversity of bird species they are home to. In this area 220 bird species have been observed.

Picture 4: Grgos Cave and Turopoljski lug[5]



In Serbia, a famous ornithological reserve and a special nature reserve called Obedska Bara[6] (Obed swamp) Special Nature Reserve is located. This vast swamp-forest complex is located between the River Sava in the south of Srem region. Besides the several educational paths,

[4] https://savaparks.eu/turopoljski-lug-significant-landscape-525
[5] https://savaparks.eu/grgosova-spilja-grgos-cave-natural-monument-514
http://www.kronikevg.com/maticinom-cetvrtku-doznajte_povijesti-turopoljskog-luga/
[6] https://savaparks.eu/obedska-bara-special-nature-reserve-554

waterside pathways there are some significant cultural heritages like the Obed Monastery. The greatest nature related value of this area is the combination of stagnant tributaries, ponds, pits, swamp vegetation, wet meadows and forests, which results an exceptional diversity of ecosystems and species. The swamp is also called “bird heaven”.

To maintain this biodiversity at the international level, the management of the River Sava is based on the River Sava Basin Management Plan implemented by the International River Sava Basin Commission. All the states along the Sava's course have formed several national bodies that manage the river within their scope of activities and competencies. Additionally, several international projects were developed and implemented in the regions along River Sava – Savaparks I and Savaparks II, and Sava TIES, which was founded by the Danube Transnational Programme. This institutional background is a perfect basis for cooperation-based initiative like the Amazon of Europe Bike Trail.

There are total 11 NUTS 3 regions[7] along the River Sava

Slovenia:

- Central Slovenia (Osrednjeslovenska)
- Central Sava (Zasavska)
- Lower Sava (Posavska)

Croatia:

- Zagreb County (Zagrebacka Zupanija)
- City of Zagreb (Grad Zagreb)
- County of Sisak-Moslavina (Sisacko-moslavacka zupanija)
- County of Brod-Posavina (Brodsko-posavska zupanija)
- County of Vukovar-Srijem (Vukovarsko-srijemska zupanija)

Serbia:

- Sremska District (Sremska Oblast)
- Macva District (Macvanska Oblast)
- Belgrade District (Beogradska Oblast)

[7] Did not analyse the border area of Bosnia and Hercegovina: most of the data can not be find in NUTS 3 regional level or the data are not reliable

Table 3: Mini socio-economic dataset about Sava Regions

Sources: https://ec.europa.eu/eurostat/web/rural-development/data https://www.stat.si/statweb/en https://www.dzs.hr/default_e.htm https://www.stat.gov.rs/en-US	Area (km2)	Population 2014 (inhabitants)	Population 2020 (inhabitants)	% of the total inhabitants	Population changed between 2014 and 2020 (%)	Population density (Persons per km2)	Unemployment rate (%)	Tourist arrivals (visitors)	Overnight stays (nights)	Number of available beds
Slovenia	20273	2061085	2095861	nr	102%	103,7	5	3,065,085	9,204,374	62238
Central Slovenia (Osrednjeslovenska)	2333	531260	555274	26%	105%	237,2	4,3	308369	675684	8276
Central Sava (Zasavska)	485	58037	57156	3%	98%	118,4	5,2	2993	8408	171
Lower Sava (Posavska)	968	75680	75824	4%	100%	78,8	3,9	124777	424335	1769
Croatia	56594	4246809	4058165	nr	96%	72,8	9,8	7001128	40794455	1049109
Zagreb county (Zagrebacka Zupanija)	3060	318679	309611	8%	97%	102	5,8	42206	82323	3024
Zagreb district (Grad Zagreb)	641	796866	809235	20%	102%	1274,1	5,6	342472	780077	22096
County of Sisak-Moslavina (Sisacko-moslavacka zupanija)	4468	165166	144599	4%	88%	33,1	15,7	12985	35173	1237
County of Brod-Posavina (Brodsko-posavska zupanija)	2030	154987	136429	3%	88%	69,6	14,6	15124	24390	1084
County of Vukovar-Srijem (Vukovarsko-srijemska zupanija)	2454	174593	149489	4%	86%	63,2	14	29380	47335	2105
Serbia	77474	7146759	6926705	nr	97%	90,5	9	3689983	10073299	n/a
Sremska Oblast (Sremska Mitrovica)	3486	305880	296295	4%	97%	87,1	9,7	84134	222334	n/a
Macva District (Macvanska Oblast)	3268	289423	276177	4%	95%	85,7	9,3	67227	266519	n/a
Belgrade District (Beogradska Oblast)	3225	1677660	1696192	24%	101%	536,4	7,5	1258348	2696832	n/a

The total area of the Sava Region is 26 419,2 km^2, almost half of it can be found in Croatia. The largest NUTS3 level area is County of Sisak-Moslavina, the smallest regions can be found in Slovenia – Central and Lower Sava regions (not including Zagreb district, as it is the capital district). The population of the Sava Region is more than 4,5 million people, but of course the relatively high number of inhabitants is primarily due to the fact that 3 capitals are located in this territory: capital of Slovenia (Ljubljana), capital of Croatia (Zagreb) and capital of Serbia (Belgrade). It means the River Sava connects 3 capitals of former Yugoslavia – which is a significant difference compared to the Amazon of Europe regions, where the rural characteristic is dominant.

Along the River Sava, the number of inhabitants is decreasing – compared to the data of 2014 almost 42 000 inhabitants "disappeared" from the Sava Region. It can be attributed to two main reasons:

1. the natural mortality is much higher than the number of births
2. the rate of migration is negative – usually more people left the regions compared to the people arrived.

But the second aspect is "not completely true", due to the fact that the 3 capitals have a really significant pull effect which is considerable in the number of inhabitants. It means , in those 3 regions where the capitals are located, the population has grown (Ljubljana: 5%, Zagreb 2%, Belgrade 1%). There is only one NUTS3 region which is not capital, and the number of inhabitants has grown – the Lower Sava Region in Slovenia. The largest negative changes regarding the number of inhabitants were identified in the 3 counties, which are located next to Bosnia and Hercegovina: County of Sisak-Moslavina (-12%), County of Brod-Posavina (-12%) and County of Vukovar-Srijem (-14%). This loss regarding the population is extremely high, for only 6 years the number of inhabitants has decreased with more than 60 000 people – a city with 64 000 people would be the 14th biggest city in Hungary…

Regarding the population density, there is no extremely dense regions, only the 3 capitals' numbers are higher compared to the others (Zagreb district is the densest area, 1,274 people/km^2), the least densely populated area is located directly next to the Zagreb District, County of Sisak-Moslavina where only 33 people live in 1 km^2.

The unemployment rate in Slovenia (5%) is lower than in the other two countries (Croatia: 9,8%, Serbia 9%). In the analysed Sava Regions, there are 6 regions with higher unemployment rate compared to the national average, and there are 5 regions where the rate is lower than the average. The smallest unemployment rate was detected in Lower Sava Region (3,9%), the most unemployed people are living in 3 Croatian regions (County of Sisak-Moslavina – 15,7%, County of Brod-Posavina – 14,6% and County of Vukovar-Srijem – 14%).

In Slovenia, the TOP attraction is obviously the capital and its cultural heritages. The Castle of Ljubljana[8], which has been standing on the hill above the city for about 900 years, is Ljubljana's main attraction, which can be visited by funicular railway or on foot, as well. The tower of the

[8] https://www.visitljubljana.com/en/visitors/explore/things-to-do/sightseeing/article/10-ljubljanas-top-attractions/

castle and its ramparts offer the most beautiful view of the city. The central part of the city was planned by the urban planner Joze Plecnik, who designed the famous “triple bridge” of the city. Another bridge is also very famous in Ljubljana: The Dragon Bridge (built in 1901) both scary and magnificent at the same time –the dragon is the symbol of the capital city of Slovenia. In the Lower Sava region several wellness and spa centres are located, and the recreational activities, such as cycling, golf, hunting and the increasingly popular sport fishing are also important touristic offers. The Lower Sava Region (Posavje Region) is also marked by few less known, but extremely important cultural monuments, medieval castles, and churches.

Picture 5: Ljubljana[9]

In Croatia, along the River Sava the main tourism attractions[10] and its tangible/intangible heritages are to be found in Zagreb. The upper town of the Croatian capital city (Gornji Grad) with the St. Mark Church (easily recognizable by the brightly coloured tile roof bearing the coats of arms of Croatia, Dalmatia, Slavonia, and Zagreb City), with Tkalciceva Street (the most famous and colourful street of the city) makes the inner city of Zagreb so special and attractive. The Zagreb Cathedral is still one of the most visited places of Zagreb despite the historic fact that it was almost destroyed by the Tartars in the early 1200s and by an earthquake in 1880. The Lotrscak Tower and the “Stone gate”, which are important medieval structures, faithfully reflect the centuries of wars. In Sisak-Moslavina County, one of the most visited places is the Lonjsko Polje Nature Park, which is the largest protected wetland area in whole Croatia with indigenous breeds of horses and pigs, waterfowls, and beautiful nature – which makes the nature park such a popular destination for hikers mainly. Sisak and its Roman ancient heritages (Siscia) are also well-known. In Brod-Posavina county The Brod Fortress from the Baroque period is one of the most visited sight, which was constructed during the Austro-Hungarian Empire to serve as a stronghold against the Ottoman Empire, situated on the other bank of the Sava River. It is one of Europe's best-preserved fortresses, and one of the biggest

[9] https://www.trekhunt.com/blog/hu/top-20-ljubljana-latnivalo-program/
[10] https://www.tripadvisor.com/Attractions-g2569704-Activities-Brod_Posavina_County_Slavonia.html
https://www.planetware.com/tourist-attractions-/zagreb-hr-cc-z.htm
https://www.tripadvisor.com/Attractions-g303842-Activities-Vukovar_Vukovar_Syrmia_County_Slavonia.html

on the former Austro-Hungarian Military Frontier. Additionally, the Slavonski Brod Synagogue, which was destroyed during World War II, was among the largest and most prestigious synagogues in Croatia. In Vukovar County, unfortunately the tourism attractions are in strong connection with tragic historical events. The Memorijalno Groblje Vukovar (where 938 white crosses are erected at the site for the victims of the Croatian War of Independence), the Ovcara Memorial Centre and the Vukovar Water Tower (which is currently under renovation) are the symbols of the Croatian War of Independence. The Vucedol Culture Museum is presenting the historical times of the humanity with very interesting exhibitions.

Picture 6: Tourism hotspots in Croatia[11]

The most frequented tourism hotspots in Serbia along the Sava Regions[12] are the heritages – both natural and cultural – in Belgrade which is the capital city of Serbia. The city is one of the oldest cities in Europe with its 7000 years. Belgrade has a fascinating city centre with a pedestrian area, together with many churches and beautiful buildings. One of the biggest buildings is the St. Sava's Temple, which is one of the newest and largest Orthodox churches. Its construction was begun in 1894, and the exterior was completed only in 1984. One of the most picturesque spots of Belgrade is the Kalemegdan Fortress in Belgrade, where you can see the beautiful confluence of the Rivers Sava and Danube. The fortress is the most visited

[11] https://www.visitzagreb.hr/zagreb/saint-marks-church/
http://www.visitadriatic.eu/en/hrvatske-regije/nacionalni-parkovi/park-prirode-lonjsko-polje/
https://www.h-r-z.hr/en/index.php/spotlight/european-year-of-cultural-heritage/2230-slavonski-brod-brod-fortress-cavalier
https://www.great-towers.com/tower/vukovarski-vodotoranj-vukovar-watertower

[12] https://www.tripadvisor.co.uk/Attractions-g2260696-Activities-Sremska_Mitrovica_Vojvodina.html ,
https://www.tripsavvy.com/belgrade-serbian-capital-danube-sava-4119084

tourist attraction in Belgrade (with over 2 million visitors per year), with Skadarlija being the second, (which is actually a vintage street with ambience of the traditional urban architecture). In the Sremska district the 2 special nature reserves must be highlighted besides the Roman heritages (called Sirmium):

- the Obedska Bara, (which is an abandoned meander of River Sava, and after Yellowstone, Obedska pond is the first nature reserve in the world, which was declared a special nature reserve, and it has a special level of protection)
- and Zasavica (this is a special nature reserve, one of the last authentically preserved wetlands in Serbia, moreover, it is one of the only places in the world where you can see preserved wetlands with diverse flora and fauna).

Picture 7: Kalemegdan Fortress in Belgrade and the Obedska Bara[13]

Regarding tourism, there are three main basic data, which should be analysed to receive reliable information about the tourism statistics: the number of tourist arrivals, the number of overnight stays, and the number of beds (capacities). It is an interesting fact that even though there are 3 capitals in Sava Regions, the number of visitors and the overnight stays are

[13] Source: https://belgrade-beat.com/areas/kalemegdan https://www.vojvodinasume.rs/en/snr-obedska-bara/

not so significant in Slovenia and Croatia. Of course, this is mainly due to the fact that the biggest tourism hotspots are not located in the capital's region (Adriatic Sea regions, sky paradise etc.). The touristic arrivals regarding the analysed regions are only realized in the 14% of the total number of Slovenian touristic arrivals, while the same data in Croatia is only 6%, however, in Serbia it is 38%. The same tendencies can be detected regarding the number of overnight stays: the Sava Regions have reached only 12% of total overnight stays, while the same data in Croatia is 2% (!), and in Serbia it is 31%.

In depth analysis regarding the territorial differences, naturally the 3 capitals have the highest numbers related to the number of visitors, number of overnight stays and number of beds. We have to highlight Belgrade, which is the top NUTS3 region in each data. The highest touristic arrival and overnight stay rates from rural areas were identified in Lower Sava region (124 777 touristic arrivals, and more than 424 000 overnight stays), where the culinary offer attracts many new tourists. There are several wellness and spa centres in the region, and the recreational activities, such as cycling, golf, hunting and increasingly popular sport fishing are also important touristic offers. The Lower Sava Region (Posavje Region) is also marked by few less known, but extremely important cultural monuments, medieval castles, and churches.

4.2 Ukraine-Poland cross-border area

Reasons for selecting this area: three cross-border biosphere reserve areas, protected areas, touristic potential (unexplored touristic potential).

The Ukraine-Poland cross-border area is a very interesting region where 3 biosphere reserves are operating, each of them have cross-border related aspects. It means, the region has a very strong nature protection related focus: untouched forests, wetlands can be found here. Additionally, in the respect of Amazon of Europe development model, all along the region there is a unique river system – which means in this case that the tourists won't follow the river(s) around the bike trail. The original idea is that the visitors will cycle across the cross-border biosphere reserves, where they can discover several rivers (mainly the Western Bug and the Ung River, but there are e.g. Dnester, Yahodinka, San, Ung, Lyuta) wetlands, and lakes, as well. The biosphere reserves define the trail itself, not the rivers:

- West Polesie Transboundary Biosphere Reserve (Belarus/Poland/Ukraine)
- Roztocze Transboundary Biosphere Reserve (Poland/Ukraine)
- East Carpathians Transboundary Biosphere Reserve (Poland/Slovakia/Ukraine)

Regarding touristic aspect, this region has a huge potential, but of course it is challenging, as well: this border region is not only a cross-border region, but this is also the border region of the European Union, so crossing the borders can be problematic (especially nowadays due to the Covid-19 pandemic situation). The quality of cycle related infrastructure is also questionable: the infrastructural background is needed to be analysed deeply, because safe cycling is essential within the Amazon of Europe development model.

4.2.1 West Polesie Transboundary Biosphere Reserve[14]

The history of this biosphere reserve started in 2002, when Polesie National Park became a part of the World Network of Biosphere Reserves, and together with Shatskyi Biosphere Reserve (Ukraine), as well as "Pribuzskoye Polesie" Biosphere Reserve (Belarus) formed "West Polesie" Transboundary Biosphere Reserve. The date of designation is 2012, and since 2018 the "West Polesie" Transboundary Biosphere Reserve consisting of areas in Poland, Belarus, and Ukraine, which so far have functioned as distinct (domestic) Biosphere Reserves.

Picture 8: The area of West Polesie Transboundary Biosphere Reserve

The biosphere reserve is located in the cross-border region of the 3 countries, the total surface of the biosphere reserve is 263 016 hectares – the biggest part of the territory is located in Poland (139 917 hectares), in Ukraine the surface is 75 075 hectares, and 48 024 hectares are located in Belarus. The West Polesie Biosphere Reserve is well-known about the great number of lakes (almost 100 lakes can be found in this region, mostly in Poland), but marshes, meadows, swamp and lake complexes are also characterising the area, where rare and endangered species live (The Marsh Sandpiper, Eurasian cranes, etc.), and this area is an important crossing point for migratory birds, as well.

The total number of the inhabitants is around 68 000, 90% of them lives in the transition zone of the biosphere reserve. This region is a melting pot of different cultures, nationalities and religions, and nowadays a migrational pathway – it can be described as a cultural edge of Eastern and Western Europe. The agriculture, forestry (together with fishing) and tourism (especially weekend recreation) are dominating the economic activities within the region. The strong and historical connection with the forests can be identify in the culture, the traditional

[14] http://www2.poleskipn.pl/index.php/o-nas
https://en.unesco.org/biosphere/eu-na/west-polesie

material of architecture is basically wood. To strengthen the economic, environmental and cultural cooperation, the BUG Euro-region was founded in the trilateral cross-border area in 1993 – the biosphere reserve is enhancing this cooperation, as well.

Picture 9: Bubnów peatbog in the West Polesie Biosphere Reserve[15]

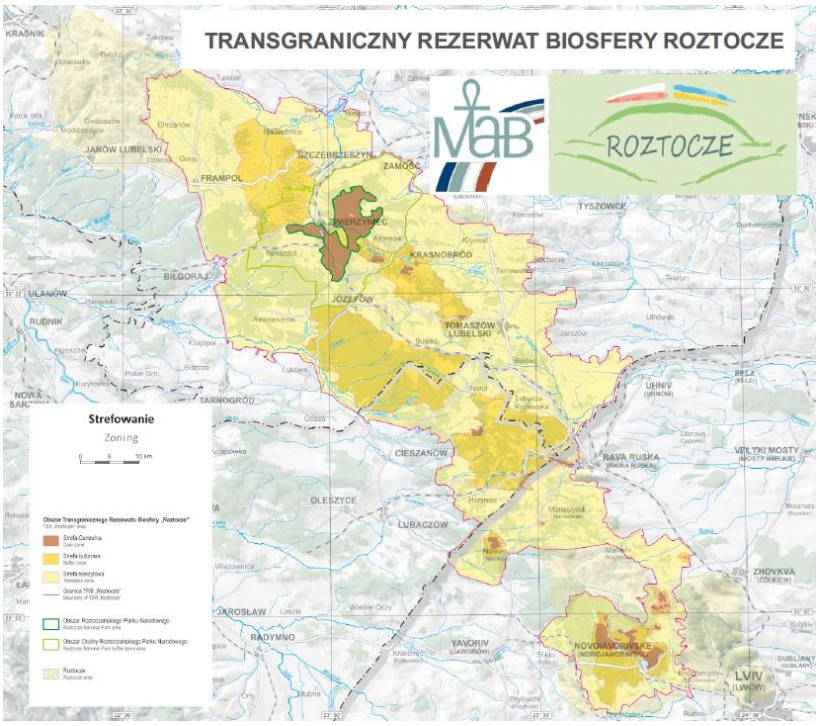
4.2.2 Roztocze Transboundary Biosphere Reserve (Poland/Ukraine)[16]

The Roztocze Transboundary Biosphere Reserve was founded in 2019, it is located in southeast Poland and western corner of Ukraine, and the area of this biosphere reserve is 371 902 hectares – almost 300 hectares (297 015 hectares) are located in Poland, and 74 887 hectares are in Ukraine. Altogether 17 nature protection areas can be found within the bilateral biosphere reserve, which encompassing limestone hills covered by forests, loess areas, deep river valleys, and sources of mineral water.

[15] https://www.researchgate.net/figure/Bubnow-peatbog-in-the-West-Polesie-Biosphere-Reserve_fig8_263707841

[16] https://roztoczanskipn.pl/pl/
https://en.unesco.org/biosphere/eu-na/roztocze

Picture 10: Roztocze Transboundary Biosphere Reserve[17]



The Roztocze Transboundary Biosphere Reserve is an important ecological corridor in Europe – a narrow land which connects the Polish Highlands with Podolia, enabling the migration of animals. The region is an important natural boundary, where the heterogeneous forests are the main resources of the region – including in particular the Carpathian beech forest and fir forest. It is important to highlight the diverse mammal representation in this area, especially richness of the bat species, however, the avifauna is also special (ducks, black stork, eagles, woodpeckers and owls, etc.).

Picture 11: © UNESCO/P.Marczakowski/Roztocze Biosphere Reserve - Poland

[17] https://roztoczanskipn.pl/pl/park-na-roztoczu/informacje-ogolne

The transboundary biosphere reserve is located in the vicinity of Zamosc (Poland) and Lviv (Ukraine), both cities have significant cultural heritages, and both cities can be found on the UNESCO World Heritage List. The area has around 160 000 inhabitants, the residents work mainly in the tourism, forestry, and agricultural sectors. However, the emigration of young people is significant due to the unfavourable farming conditions, and the fragmentation (and modernization) of farms. It is important to mentione regarding the Amazon of Europe development model, that the development plans of the Rotocze biosphere reserve seek to change this negative demographic process and allow the region to exploit its benefits from its natural and cultural heritages. The development of tourism can play a significant role in this process – the biosphere reserve is visited by approximately 600 000 people every year.

4.2.3 East Carpathians Transboundary Biosphere Reserve (Poland, Slovakia, Ukraine)[18]

The East Carpathians Biosphere Reserve is a trilateral transboundary biosphere reserve, which is located in Central Europe. It covers the western part of the Eastern Carpathians across Poland, Slovakia and Ukraine. This mountainous area provides suitable conditions for large mammals such as the European bison, but also give perfect location for native flora and fauna. The transboundary biosphere reserve was originally designated as a bilateral transboundary reserve in 1992 (Polish–Slovak), but then the biosphere reserve was extended with the Ukrainian part in 1998. Nowadays the total surface of the biosphere reserve is 208 076 hectares, and it contains 6 protected areas from the three countries – three national parks and three landscape parks.

Picture 12: East Carpathians Transboundary Biosphere Reserve (Poland, Slovakia, Ukraine)[19]

[18] Source: https://en.unesco.org/biosphere/eu-na/east-carpathians

[19] https://en.wikipedia.org/wiki/East_Carpathian_Biosphere_Reserve#/media/File:East_Carpathian_Biosphere_Reserve_map_(en).png

The biosphere reserve's main characteristics are the mountainous landscape, and the high proportion of forests – unique four distinct vegetation types can be found within the biosphere reserve. The mixed Carpathian Forest provides a perfect place and conditions for large European mammals; such as the European brown bear, the European bison, and the Eurasian lynx, but the biosphere reserve offers perfect conditions for birds, as well - around 100 species of birds live in this area. The Wooden Tserkvas (Poland and Ukraine), and the Primeval Beech Forests of the Carpathians (Slovakia and Ukraine) appeare on the list of UNESCO World Heritages sites.

Picture 13: Beech forest in the East Carpathian Biosphere Reserve[20]

The majority of the employment is taken by agriculture and forest industry. Agriculture is limited to traditional animal husbandry, and small-scale bio farming, where traditional land-use patterns are tried to be used. The tourism itself is developing rapidly, which has had a significant impact on the local tourism and local communities, as well – this can be an important economic sector where further development processes will be carried out to attract more tourists within the biosphere reserve.

There are total 11 NUTS 3 regions around the three transboundary biosphere reserves:
Poland:

- Bialski
- Lubelski
- Chelmsko-zamojski
- Przemyski
- Krosnienski

Belarus:

- Brest

[20] http://fotogeograf.blogspot.com/2016/07/beech-forest-in-east-carpathian.html

Ukraine:

- Volyn District
- Lviv District
- Zakarpattia District

Slovakia:

- Presovski kraj
- Kosicky kraj

Table 4: Mini socio-economic dataset about the three transboundary biosphere reserves regions

	Area (km2)	Population 2014 (inhabitants)	Population 2020 (inhabitants)	% of the total inhabitants	Population changed between 2014 and 2020 (%)	Population density (Persons per km2)	Unemployment rate (%)	Touristic arrivals (visitors)	Overnight stays (nights)	Number of available beds
Poland	311928	38017856	37958138	nr	99,84%	123,6	5,8			
Bialski	5977	304389	296622	0,78%	97,45%	50,3	9,4			
Lubelski	4221	709182	710739	1,87%	100,22%	169,8	6,3			
Chelmsko-zamojski	9291	635038	610382	1,61%	96,12%	66,2	8,9			
Przemyski	4293	390097	382299	1,01%	98,00%	90,1	10,9			
Krosnienski	5537	474956	469516	1,24%	98,85%	85,6	8,6			
Belarus	207600	9443972	9410259	nr	99,64%	46,6		2 950 431	13 342 523	40 658
Brest	32790	1375994	1347240	14%	97,91%	43		314 200		5 100
Ukraine	603628	45410071	41328660	nr	91,01%	74	8,5			
Volyn oblast	20144	1041375	1023499	2,48%	98,28%	53	12,6			
Lviv oblast	21833	2537806	2474685	5,99%	97,51%	118	7,6			
Zakarpattia oblast	12800	1256958	1245905	3,01%	99,12%	98	9,9			
Slovakia	49035	5415949	5457873	nr	100,77%	112	7,57	854 011	2 347 568	209 330
Presovski kraj	8973	818216	826274	15,14%	100,98%	92,2	11,39	151 002	462 462	36908
Kosicky kraj	6754	794756	801460	14,68%	100,84%	119,6	10,55	47 576	121 700	17715

The total area of the three transboundary biosphere reserves in NUTS 3 level is 132 613 km^2, almost half of the total area can be found in Ukraine. The main reason of it is that the NUTS 3 level in Ukraine (and Belarus) are larger compared to the same statistical regions in the European Union member countries. The biggest county within the analysed territory can be found in Belarus, Brest region, which is more than 32 000 km^2, while in Poland the total surface is almost 30 000 km^2, which is shared by 5 counties (the smallest NUTS3 region is Lubelski).

The population in this whole area is 10 188 621 people (in the year 2020), which is a huge number, but the density of the population is around 77 persons per square kilometre, which means the regions are sparsely inhabited. The number of inhabitants is dominated by the Ukrainian counties, where 4 774 000 people live, each region has more than 1 million inhabitants. The most populated region is Lviv oblast with almost 2,5 million people. In the Polish regions almost 2 700 000 people live, but of course it is shared by 5 countries. The change of population between 2014 and 2020 was not so significant – population decline was only 1,5%, the biggest negative changes were identified in Poland (Chelmsko-zamojski region -3,88 %, Bialski -2,55%). It is interesting, that in Ukraine during the last 5-6 years the number population has decreased by around 9%, but the analysed regions only lost 1,9%. To identify the main reason of these demographic changes needs a more complex approach, however, the war conflict with Russia affected mainly the eastern part of Ukraine. Additionally, due to the relatively close location to the European Union the analysed 3 regions are the primary target area of the domestic migration. It is also interesting to see that the number of population was increased in each Slovakian counties, furthermore the positive population change was only detected in Lubelski region (Poland).

The density of population in the analysed Polish regions are generally much lower compared to the national average, only Lubelski region has a high population density (168 people per square kilometre), which is the highest population density within the area covering the three transboundary biosphere reserves. In Brest region and the Slovakian regions the population density is more or less the same as the national averages, while in Ukraine within the 3 regions higher population density was detected compared to the national average.

Generally, as it can be seen, the unemployment rate is higher in the analysed regions compared to the national average data, there is only one exception (Lviv oblast in Ukraine). The lowest unemployment rate was detected in Lubelski (6,3%), Lviv (7,6%) and Krosnienski (8,6%) regions, the highest unemployment rate was recorded in Przemyski (10,9%), Presovski (11,39%) and Volyn (12,6%) regions.

Reliable touristic data are not available for the Ukrainian and Polish NUTS 3 regions, therefore the number of touristic arrivals and overnight stays cannot be presented. In Slovakia, almost 25% of the tourist arrivals and the overnight stays realized in the analysed 2 regions, which are located next to the East Carpathians Transboundary Biosphere Reserve area.

In Brest Region there are several sites, which attract the visitors: the capital of the region (Brest City) is the 6th biggest city in Belarus, and it has a rich historical past – the fortress of Brest is one of the most popular sites in the region. It was built in the middle of the 19th century, and it was one of the strongest European fortresses of that period. The fortress was

also “used” during the First and Second World Wars, the construction works of the complex was finished in 1971. Nowadays the memorial complex is the symbol of Brest city, a national place of grief and pride together with the Courage Monument. In the northern part of the region the Belovezhskaya Pushcha National Park is located directly next to the Polish border. It has been a UNESCO World Heritage site since 1992, where the last primeval forest fragment of the European woodlands can be found.

Picture 14: The fortress of Brest and the Belovezhskaya Pushcha National Park[21]

In Poland – besides the already presented Polesie and Roztocze national parks – within the analysed area several attractive cultural heritages[22] reveal the rich historical past, which is traditionally a junction of Eastern and Western European cultures. The capital of the region is Lublin, an inspiring city with several heritages like the Lublin Castle, Donjon Castle Tower, the

[21] https://www.tripadvisor.com/Attractions-g2470748-Activities-Brest_Region.html
[22] https://www.poland.travel/en/regions/lubelskie-voivodship-follow-the-bug-river
https://www.poland.travel/en/regions/podkarpackie-voivoidship

old town, and the cathedral of Lublin, but the Lublin Underground Trail is also a unique attraction[23]. It is important to mention the town of Zamość, which has a unique old centre, which is a UNESCO World Heritage site.

Picture 15: The Old town of Lublin and Zamość[24]

Additionally, it is important to mention the Bieszczady mountains – a special place famous for its nature, landscape and cultural values. Together with the Lake Solinskie – which is the largest artificial lake in Poland – the Bieszczady Mountains are the largest rest and recreation base in the region. The region is also well-known about the castles from various historical periods: Łańcut, the Renaissance palaces in Baranów Sandomierski and Krasiczyn, and the castle in Przemyśl. Krosno town has a glass heritage centre demonstrating glass manufacturing, and glass sculptures. Sanok is famous for its wooden architecture, this town is an important spot along the Wooden Architecture Route.

In Lutsk, as capital of Volyn region (Ukraine) the most visited sight[25] is the Lubart's Castle, which was built during the 14th century, and has a rich historical past, now it is the most

[23] It is important to mention the cellars of Rzeszów, situated on 3 levels, 10 metres under the market square
[24] https://www.tripadvisor.com/Tourism-g2423093-Lublin_Province_Eastern_Poland-Vacations.html
[25] https://www.tripadvisor.com/Tourism-g2693144-Volyn_Oblast-Vacations.html

prominent landmark of the city. One of the most beautiful wooden cathedrals can be found in Kovel city, thanks to the continuous restauration works, the religious sight is in a very good condition. In Lviv region besides the natural values (which was already described previously) several significant cultural sights are located, e.g. the old town of Lviv, which is included on the UNESCO World Heritage List. There are several so-called State Historical and Cultural Reserves e.g. in Belz, which was a capital of an independent principality, but the monastery complex in Krekhiv (located in the Roztocze National Park) is also a frequented sight for visitors. In Zakarpattia region the most visited place by tourists is the Palanok Castle in Mukacheve, which was built atop a volcano, and where the view to the city is unique and picturesque, but also popular the Subcarpathian Rus' Museum of Folk Architecture, where the countryside lifestyle and rural traditions are perfectly presented.

Picture 16: The Lubart's Castle, old town of Lviv, Palanok Castle in Mukacheve and the monastery complex in the Roztocze National Park (Krekhiv)

The third biggest city, Prešov is the capital of the biggest NUTS3 region in Slovakia called Prešovský kraj, where the High Tatras are located, which is one of the most attractive areas in Slovakia in terms of tourism. Additionally, the Eastern Carpathian Mountains with the National Park of Poloniny is part of the region, which is covered by the virgin woods. Additionally, the region is rich in cultural heritages as well, Bardejov old town has been included in the UNESCO

https://ukrainetrek.com/lviv-oblast
https://mydaytrip.com/discover/location/palanok-castle
https://imgur.com/gallery/BxXg6

World Heritage List since 2000, but the famous spa facilities and wooden churches also enrich the touristic offer of the region. [26]

In Kosice Region, the capital city Kosice is an absolute touristic magnet for visitors – the second biggest city in Slovakia has a beautiful old town, and rich historical past, in 2013 the city was the European Capital of Culture. The symbol of the city is the St. Elisabeth Cathedral, which is the easternmost gothic cathedral in whole Europe. The Spiš Castle is also located in this region, which is a National Cultural Monument and is one of the largest castle complexes in Central Europe and has been included in the UNESCO World Heritage List since 1993. Additionally, the most significant and most precious (UNESCO listed) caves can be found here: the Slovenský kras (Slovak Karst) and Dobšinská ľadová jaskyňa (Dobšina Ice Cave).

Picture 17: The old town of Bardejov, the Hih Tatras, the St. Elisabeth Cathedral in Kosice and the Spiš Castle

4.2.4 +1 The Green Velo Route

Regarding the Amazon of Europe Bike Trail, it is important to highlight the Green Velo Route[27] in Poland. The Green Velo East of Poland Cycling Trail is the longest consistently marked cycle trail in Poland, it leads through the beautiful areas of eastern Poland. The slogan of the route

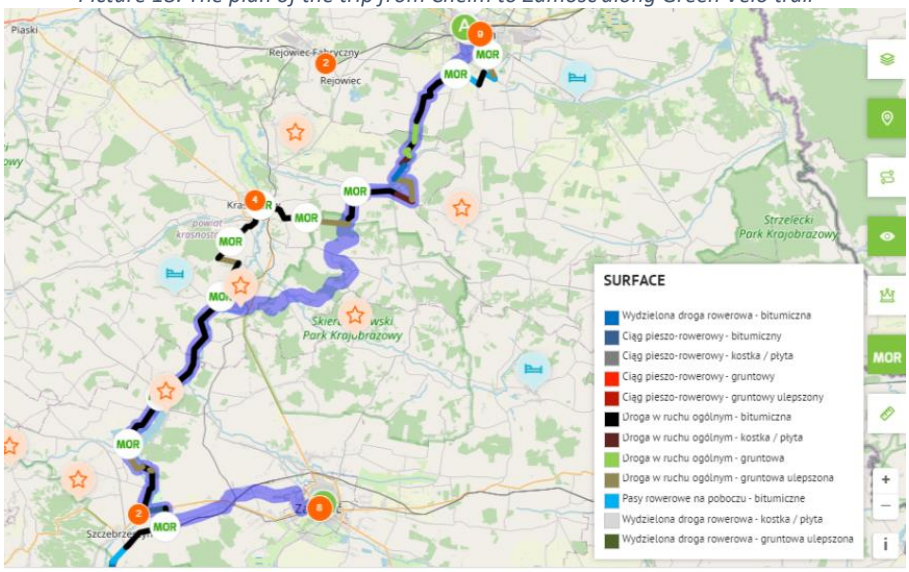
[26] https://slovakia.travel/en/presov-administrative-region
https://slovakia.travel/en/kosice-region-tourism-app
[27] https://greenvelo.pl/en

is: *"2000 kilometres long, and more than 2000 reasons to visit".* The Green Velo is divided into a so called main route and "detours", same as the Amazon of Europe Bike Trail. The main route is 1885 kilometres long, the additional liaison routes are about 200 kilometres in length and have the same signpost markings as the main route. The main reason of the liaison routes is to allow cyclists to link to junctions and major tourist attractions near the main trail. The route leads through five national parks and numerous landscape parks and nature reserves.

The trail has a good infrastructural background: there are about 300 kilometres of new or rebuilt cycle paths or bike lanes, there are only 150 kilometres where the visitors have to cycle on unpaved roads. Along the northern part of the trail, long sections have been lain on the embankments of former railway lines. In every 8-10 kilometres so called "Cyclist Service Points" have been constructed (total: 230), each of them is equipped with bicycle racks, benches, and sheds, as well as information boards. The trail is divided into 12 so-called bike kingdoms, which are actually the name of those smaller regions where usually the tourists stay longer.

The homepage of the route is very detailed and contains a lot of information about the trail itself – the visitors can receive all the needed information easily and quickly. There is a detailed map about the bike trail, where you can see detailed information about the most important POIs (divided into 5 categories: food and beverage facilities, accommodations, touristic information, attractions, and services). It is also possible to see only the Green Velo trail, but according to the needs additional trails can be visible, as well. They also distinguish upon how people would like to cycle along the trail: it is visible, which route is recommended for families, mountain bikers or for trekking bikers. There is information about the surface quality of the route on the digitalized map – the surface quality was divided into 12 categories therefore the visitors are well informed about the condition of the surface. On the map the Bike Kingdoms and the Cyclists Service Points are also well marked.

Picture 18: The plan of the trip from Chelm to Zamość along Green Velo trail[28]



[28] Source: https://greenvelo.pl/en/map . The map was filtered to see the surface quality of the route, to see the attractions and accommodations and the Cyclists Service Points

There is a “plan your trip” section in the webpage, where people can plan their trip between a start and an end point and will be able to see all the details between the 2 points (the surface of the route, the POIs like attractions and accommodations, etc.). Additionally, people will be informed about the length of the route, the needed time to complete the trip, and the “plan of the trip” can be easily download as a .gpx file into the mobile, or to the special mobile app of the Green Velo route. Of course, there are a lot of already developed and digitalized trips along the trail, which can be downloaded easily together with a lot of information:

- information about the timeframe and distances (time of cycling, time of sightseeing, difficulty level, distance, highest and lowest points etc.)
- information about the trip: a detailed description about what to see (tourism attractions), route options and surface quality.

The Green Velo Tour Bike Trail is a well-developed and very interesting bike trail, which is quite similar to the Amazon of Europe Bike Trail initiative. The 2 cycle routes have a lot of similarities, each of the trails try to valorise the picturesque landscape for the local service providers, and to attract the cyclists to show the natural beauties of the regions. To highlight the most significant differences, the Green Velo has a wider option to inform the tourists about the cycle infrastructure (interactive map, surface information, detailed mapping of POIs etc.), while the Amazon of Europe Bike Trail is already a bookable touristic product with all the related services.

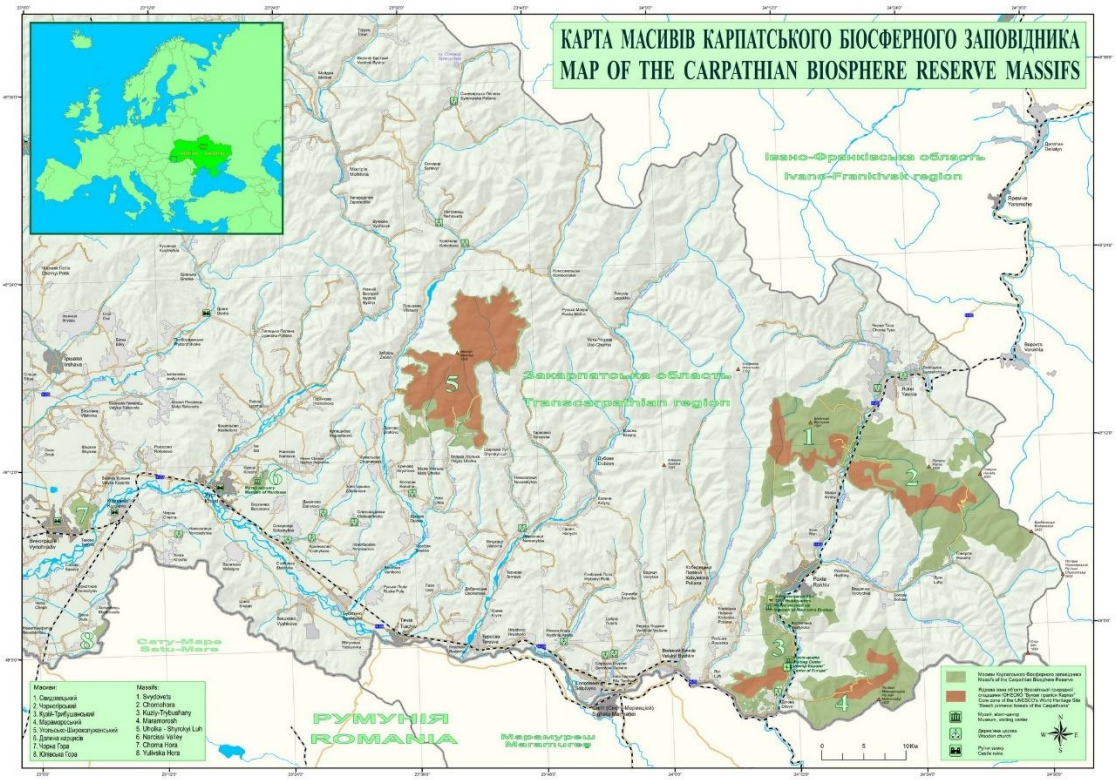
4.3 Tisza River and its surrounding area

The Tisza (or Tysa, Tisa) river is one of the major rivers of the Central/Eastern Europe, meandering across 5 countries: Ukraine, Romania, Slovakia, Hungary and Serbia.29 The Tisza River begins in Ukraine, in the Eastern Carpathian Mountains near Rakhiv, where the White and Black Tisza flow into each other. The total basin size of the Tisza is around 156 000 km2, the total length of the river is 966 kilometres. The river is mainly meanders through Hungary, where the Tisza Dam was built to store the water for drought seasons in the 1970s, and a beautiful lake has evolved. After leaving the Great Plain in Hungary, the river flows into Serbia, and in Vojvodina region – near Stari Slankamen and Titel – the confluence area of the Tisza and Danube is located.

In Ukraine, in the East Carpathian mountainous region, at the confluence of the White and Black Tisza the Carpathian Biosphere Reserve[30] can be found (the administrative centre of the biosphere reserve is located in Rakhiv). Thanks to the fact, that the intensive “usage” of the Ukrainian part of the Carpathians started later than in the Western Carpathians, the wild nature (especially the virgin forests) has been preserved already since the beginning of the XX. century. The designation date of the biosphere reserve is 1992, the total surface of this mountainous nature protected area is 58 038 hectares.

[29] The Tisza River does not enter Romania and Slovakia, the Tisza is the border river in this countries.
[30] http://cbr.nature.org.ua/main.htm and https://en.unesco.org/biosphere/eu-na/carpathian

Picture 19: The Carpathian Biosphere Reserve[31]



The largest massif of virgin beech forests in Europe (Uholsko-Shyrokoluzhanskyi massif) is located and protected within the Carpathian Biosphere Reserve, as well as the famous and popular Valley of Narcissi. Since 2007 the protected area has become a part of the UNESCO World Natural Heritage site. Additionally, numerous viable populations of large carnivores like wolf, lynx and bear are well preserved here. The population within the biosphere reserve is negligible, the people live outside, but the land is actively used by them because the majority of inhabitants are engaged in small-scale agricultural activities (mainly cattle and sheep grazing). The people are mainly employed by the forestry sector, but the fishing and small-scale tourism activities can also function as an income for them. Most of the local inhabitants here are engaged to the nature protection since substantial part of their life depends on the land and on the nature.

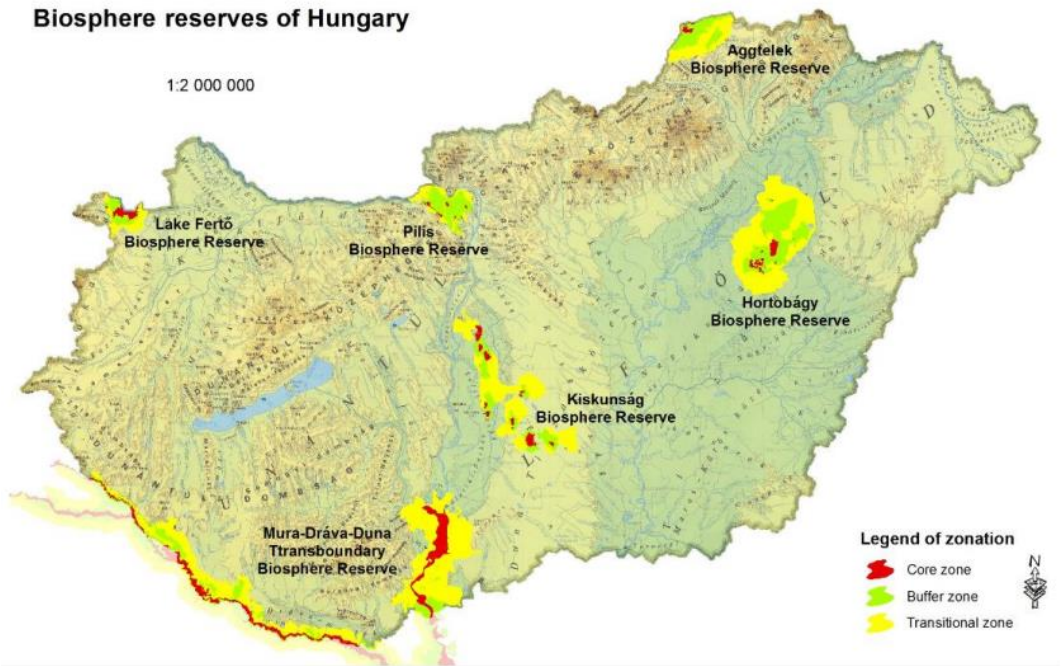
[31] http://cbr.nature.org.ua/jpg/zapmap.jpg

Picture 20: The Carpathian Biosphere Reserve[32]

In Hungary, directly along the Tisza River there are two biosphere reserves and 1 national park. The Hortobágy Biosphere Reserve[33] is part of the Hortobágy National Park, which is the greatest and oldest national park in Hungary. It was founded in 1973 and it has been a biosphere reserve since 1979, the total area of the protected area is 154 591 hectares. The national park has also been part of the UNESCO World Heritage list since 1999. Hortobágy is located in the Great Hungarian Plain, it has a unique vast flat steppe landscape called “puszta” - which features the Asian steppe characteristics – but also has marshes, fishponds and small forests, as well. After the river regulation works, the landscape has changed a lot because most of the alkaline marshes have become dry and significantly degraded for the past 150 years. This area is one of the most important sites regarding the bird migration in the Continental part of Europe.

[32] https://www.karpaty.info/en/uk/zk/rh/rakhiv/sights/biosphere/
[33] https://en.unesco.org/biosphere/eu-na/hortobagy

Picture 21: The location of Horotbágy and Kiskunság Biosphere Reserves[34]



The Kiskunság Biosphere Reserve[35] has been a part of the global biosphere reserve network since 1979, few years later than the National Park was founded (1974). It is located between the two largest rivers in Hungary the Rivers Danube and Tisza, the total area of the biosphere reserve is 23 671 hectares. According to the Ramsar Convention the 2 wetlands of the area are of international importance, but several Natura 2000 sites are also very important regarding the bird migration. The Kolon-tó at Izsák has been a Biogenetic Reserve since 1995. In this national park endangered or rare species of flora and fauna can be found, thanks to the diverse terrestrial and aquatic habitats. The most unique and characteristic feature of the national park is that it is mostly covered with sodic habitats, which results in the second largest sodic habitat in the Carpathian Basin (but thanks to its mosaic characteristic, the diversity of flora and fauna is unique, especially the species of insects, which adjusted to the special sodic environment). The number of typical sodic nesting birds exceeds 100 pairs, but together with the migrating colonies it can reach 200.

The Danube-Tisza Interfluve region provides a great opportunity for tourism like the small-scale village tourism, spa and wellness tourism, wine tourism together with the rich cultural and ethnographical values. Within the nature protected areas there are several educational paths and trails together with lookout towers, which offers everyone the joy of the natural beauties found in the Kiskunság region.

34 http://www.termeszetvedelem.hu/_user/browser/File/UNESCO/kez_tervek/Management_plan_Pilis%20BR%202017.pdf

35 https://en.unesco.org/biosphere/eu-na/kiskunsag

Picture 22: The landscapes of Kiskunság and Hortobágy Biosphere Reserves[36]

There are altogether 13 NUTS 3 regions along the Tisza River:

Ukraine:

- Zakarpattia Oblast

Romania:

- Maramures region
- Satu Mare region

Hungary

- Szabolcs-Szatmár-Bereg County
- Borsod-Abaúj-Zemplén County
- Heves County
- Hajdú-Bihar County
- Jász-Nagykun-Szolnok County

[36] https://csodalatosmagyarorszag.hu/cimke/kiskunsagi-nemzeti-park/ https://www.dehir.hu/hajdu-bihar/visszahozna-a-regi-puszta-latvanyat-a-hortobagyi-nemzeti-park-uj-vezetoje/2016/04/30/

- Bács-Kiskun County
- Csongrád-Csanád County

Serbia:

- North Banat District (Severnobanatski Okrug)
- South Backa Region (Južnobački Okrug)
- Central Banat District (Srednjobanatski Okrug)

Table 5: Mini socio-economic dataset about the Tisza River regions

	Area (km2)	Population 2014 (inhabitants)	Population 2020 (inhabitants)	% of the total inhabitants	Population changed between 2014 and 2020 (%)	Population density (Persons per km2)	Unemployment rate (%)	Touristic arrivals (visitors)	Overnight stays (nights)	Number of available beds
Ukraine	603628	45410071	41328660	nr	91%	74	8,5			
Zakarpattia Oblast	12800	1256958	1245905	3%	99%	98	9,9			
Romania	238390	19947311	19328838	nr	97%	82,7	5,1			
Maramures region	6304	472335	458636	2%	97%	73,2	2,1			
Satu Mare region	4417	340986	331217	2%	97%	75,4	3,7			
Hungary	93011	9877365	9769526	nr	98,91%	107,1	4,1	5377940	13689659	127172
Szabolcs-Szatmár-Bereg County	5933	561379	549028	6%	97,80%	94,1	8,8	126450	266295	7049
Borsod-Abaúj-Zemplén County	7247	674999	637064	7%	94,38%	89	4,8	274907	676084	15664
Heves County	3637	303503	293421	3%	96,68%	82,4	3,1	357959	822074	10859
Hajdú-Bihar County	6209	539507	526727	5%	97,63%	86,5	5,2	267532	743466	12794
Jász-Nagykun-Szolnok County	5581	383489	366905	4%	95,68%	67,5	7,6	128814	348156	10251
Bács-Kiskun County	8443	516892	502220	5%	97,16%	60,2	4,7	131838	298507	10994
Csongrád-Csanád County	4262	407389	398322	4%	97,77%	95,2	3,2	194371	399366	10193
Serbia	77474	7146759	6926705	nr	96,92%	90,5	9	3689983	10073299	
North Banat District (Severnobanatski Okrug)	2328	141612	135453	2%	95,65%	59,1	6,1	34393	155491	
South Backa Region (Južnobački Okrug)	4026	616722	619072	9%	100,38%	157,5	6,5	253054	502893	
Central Banat District (Srednjobanatski Okrug)	3257	180772	173017	2%	95,71%	54,7	8,9	23247	77301	

The total area of the analysed NUTS3 regions along the Tisza River is 74 444 km^2, the biggest part of the NUTS 3 level is in Hungary (41 312 km^2). The NUTS3 level is well-structured, and mostly each county has more or less the same size of the counties/regions (of course there are smaller or bigger administrative regions), only Ukraine is different, where the Zakarpattia Oblast (region) is 12 800 km^2. The main reason of it is that the NUTS 3 level in Ukraine is larger compared to the same statistical regions in the European Union member countries and in Serbia. The smallest region can be found in Serbia, where the North Banat District is only 2328 km^2. The data is also the same in the Tisza regions if we compare the number of inhabitants in NUTS3 level, in the North Banat District the number of population is only 135 453 people, while more than 1.2 million people live in Zakarpattia region. The total number of inhabitants is 6 236 987 people, more than half of the people live in Hungary.

As it can be seen thanks to the collected statistical dataset, regarding the analysed regions the number of inhabitants has decreased with almost 160 000 people for the last 5 years. There is only one region, the South Backa Region, where the population has grown. There main reason of this demography process is the relatively significant development of the Novi Sad agglomeration (which is the second biggest city of Serbia after Belgrade) in the past few years. We also have to point out Zakarpattia region, where the population only decreased with 1%, while Ukraine has lost its 9% of its population. As it was already described previously, the main reason of it is that the war conflict between Ukraine and Russia affected mainly the eastern part of the country, and due to the relatively close location to the European Union, Zakarpattia region is one of the primary target areas of the domestic migration. In the other NUTS3 regions, the decrease of the population was more or less as it was in national level, or it was a bit higher compared to the national average. The decreasing number of population significantly affected three Hungarian (Borsod-Abaúj-Zemplén County, Heves County and Jász-Nagykun-Szolnok County) and one Serbian (North Banat Region) regions, where the average of the decrease was around 5-6%. The average density of the population is relatively low, which is also one of the most characteristic demographic data of a rural region: there are only 2 out of the 13 regions where the density of the population is higher compared to the national average, tese 2 regions are Zakarpattia region and South Backa Region. In Jász-Nagykun-Szolnok County and in Bács-Kiskun County the density of population is between 60-70 people/square metre, while in Serbia North Banat and Central Banat regions the density of population is only 55-60 people/square metre. The unemployment rate is quite diverse among the analysed NUTS3 regions:

- in Zakarpattia region the unemployment rate is 9,9%, which is the highest portion within the analysed regions, and it is higher than the average unemployment rate in Ukraine (8,5%)
- In Romania, the unemployment rate within the analysed 2 regions is low (Satu Mare County: 3,7%, Maramures County: 2,1%), lower compared to the national average (5,1%)
- In Hungary, the national average of the unemployment rate is the lowest (4,1%) compared to the other countries, but only 2 out of the 7 analysed regions have lower unemployment rate: Heves (3,1%) and Csongrád-Csanád Counties (3,2%).
- In Serbia, each analysed region has lower unemployment rate than the national average (9%).

Unfortunately, reliable touristic data are not available for the Ukrainian and the Romanian regions in NUTS 3 level, therefore the number of touristic arrivals and overnight stays cannot be compared with each other in this document. In Hungary, the total number of arrivals in 2020 was more than 5.3 million visitors, 27,55% of them visited the analysed 7 regions in Hungary, while the similar rate of the overnight stays was 25,9%. The highest number of visitors and overnight stays were realized in Heves County, the lowest touristic data were recorded in Szabolcs-Szatmár-Bereg County. In the other counties, the touristic data is almost on the same level, the number of visitors and the overnight stays are distributed more or less equally.
In Serbia the total number of visitors in 2020 within the analysed 3 NUTS 3 level regions was a bit more than 310 000 visitors, which is 8,4% of the total number of visitors in Serbia, and 7,3% of the Serbian overnight stays were realized in these regions along the Tisza River. The North Banat Region and Central Banat Region the number of arrivals and the overnight stay are much lower than the other Serbian regions and compared to the touristic data of the Hungarian regions.

As it was already highlighted in the previous chapter, in Zakarpattia region the most visited sight by the tourists is the Palanok Castle in Mukacheve, but the region of the confluence zone of Black and White Tisza is also getting more and more popular thanks to the positive active tourism trends – due to the COVID-19 pandemic more and more people prefer to visit nature protected areas (connecting with cycle tourism) to avoid e.g. the crowded spa centres and city environment. Therefore, the area of the Carpathian Biosphere Reserve has had a growing number of visitors for the past 2 years.

On the Romanian side of the Tisza River[37], regarding tourism Sighetu Marmației is an important spot of Maramures region, the city has a very rich historical past thanks to the diverse composition of folk and religious traditions within the town. Near to the city, the Maramures villages are distinguished by their unique wooden churches with tall spires and shingled roofs (Poeinile Izei, Barsana), which have been recognized by UNESCO as some of the most important sites of world heritage. The buildings of Maramures villages (like the windows or entryways of the houses) are elaborated with woodcarving decoration, which is well presented in the outdoor village museum in Sighetu Marmatiei, presenting the lifestyle and the traditions of the Maramures countryside.

In Satu Mare region[38] the capital – Satu Mare – as the cultural and economic centre of the county is the most visited city. Archaeological evidence shows that the settlement was already inhabited in the Stone Age and the Bronze Age. The old town (especially the Traian Boulevard and the Freedom Square), which is located next to the Somes River is the major attraction in the city. Unfortunately, during the Ceausescu regime, a large part of the historical old town district was destroyed.

[37] https://romaniatourism.com/maramures.html
[38] https://romaniatourism.com/satu-mare.html

Picture 23: A wooden church in Maramures County and the centre of Satu Mare[39]

The area of the Upper Tisza area in Hungary is getting more and more popular for tourists. The tourism hotspot of the region is the capital, Nyíregyháza, where a huge spa and wellness facility is operating called Sóstó Gyógyfürdő, and the Sóstó Museum Village is waiting for the people who would like to be more familiar with the traditional rural lifestyle. This region is one of the most popular area of water tourism in Hungary, which is also a perfect place for cycle tourism due to the flat landscape and the low traffic volume on the roads. In the past few years several cycle tourism infrastructure developments were implemented, the area was signposted and additional infrastructure (like resting points) were built[40]. During a cycle trip it is recommended to visit the water mill in Túristvánd as well, or one of the several gothic and renaissance castles around the Tisza River. In Borsod-Abaúj-Zemplén county along the Tisza River there are two major tourism hotspots: one is the area of Sárospatak, which is well-known about the Rákóczi castle, which was built around 1250, but the city is also functioned as educational, cultural and religious centre. The Tokaj Wine Region is the most popular and famous wine region in Hungary. The region famous for its romantic landscape, the labyrinths of wine cellars with vines and hills/slopes. The history of winemaking dates back over a

[39] https://www.tripadvisor.com/Tourism-g2699695-Satu_Mare_County_Northwest_Romania_Transylvania-Vacations.html#/media/2699695/'276408509':p/?focusedIndex=0
https://whc.unesco.org/en/list/904/gallery/

[40] https://maketusz.hu/felso-tisza-videk-mint-kerekparos-turisztikai-celpont/

thousand years. The most famous wine variety is called “Aszú”, which is also known as the King of Wines. The Tokaj Wine Region was recognised by UNESCO for its importance to the common cultural heritage of humanity, and it is listed as a protected cultural landscape by the World Heritage Committee since 2002.

Picture 24: Castle of Sárospatak[41] and the UNESCO heritage Tokaj Wine Region

The „heart” of the Hungarian Great Plain is the Hortobágy, which is also functioning as a symbol of Hungary for many foreign tourists. The national park offers many attractions for visitors: the shepherd museum, the animal park (where people can see the native fauna in the “puszta”), or just have a short horse-drawn carriage tour or have a walk tour in the education trail around the national park. City of Debrecen is the second biggest city in Hungary, the symbol of the city is the Calvinist Church. The city itself offers museums, spa, tangible/intangible heritages as well for the visitors. The biggest spa facility and adventure bath in Hungary is located in Hajdúszoboszló, it is called Hungaospa.

The Tisza Lake is the second biggest lake in Hungary, which is actually an artificial lake, but the wildlife of the surrounding area is natural[42]. Several islands, dead branches, channels and reeds makes the area of the lake so special, which is also a perfect place for the protected

[41] https://csodalatosmagyarorszag.hu/hirek/itthon/a-sarospataki-rakoczi-var-es-jellegzetes-voros-tornya/ and http://vinopedia.hu/tokaji-borvidek

[42] https://aktivmagyarorszag.hu/kerekparral-a-tisza-to-korul/

birds and mammals. Around the lake, the cycle infrastructure elements are developing year by year (the cycle path was mainly built on the embankment), which means the number of the cycle tourists are growing significantly. Since the new cycle bridge was built in 2020 (6,5 kilometres long), this area is the best and safest cycle trail in Hungary, which is a beautiful destination for everyone, but especially perfect for the beginners – who just started to experience the feeling of cycle tourism. The largest visitor center can be found in Poroszló, where the biggest Central-European freshwater aquarium operates (and it is also the habitat of native variety of fishes). Here people can know more about the rich wildlife around the Tisza Lake interactively. There is a 1500 metres long water promenade which leads directly into the wild landscape of the lake, but the visitors have the possibility to rent a motorboat and discover the beauties of the lake thanks to the trails with GPS-coordinates. A Bike Center is operating in Tiszafüred, which is the ideal location of those who arrives by car to the lake but would like to rent a bike. The building itself has a cycle lookout tower as well. Along the cycle trail several beaches can be found, but to discover the islands (travel to there with boats) is a unique experience: the educational trails within the island are beautiful.

Picture 25: The Calvinist Church in Debrecen, the bridge in Hortobágy, the new cycle bridge in Tisza Cycle Trail and the unique "Bölömbika" lookout tower[43]

Following the meandering Tisza River, we can discover the „capital of Tisza", Szolnok city, which is located in the middle of the Hungarian Great Plain, important cultural and transport hub of the region. Just before the Tisza leave Hungary and entering into Serbia, the river meandering near to Ópusztaszer and Szeged, which are important tourism hotspot area of

[43] https://funzine.hu/2021/08/15/utazas/csak-vizi-uton-lehet-megkozeliteni-a-tisza-to-ket-uj-vadregenyes-kilatojat/
https://aktivmagyarorszag.hu/kerekparral-a-tisza-to-korul/ https://csodalatosmagyarorszag.hu/hirek/itthon/a-vilag-25-legjobb-uticelja-kozott-szerepel-a-hortobagy/
https://www.debreceniertektar.hu/debrecen-kiemelkedo-ertekei/debreceni-reformatus-nagytemplom

southern Hungary. In Ópusztaszer, the National History and Memorial Park can be found here (and the famous painting Feszty-körkép) together with the "temple of forest". Szeged is the cultural and economic centre of Southern Hungary, the 3rd biggest city of the country. The water tower, the old town together with the shore of Tisza, the Dome of Szeged together with the gastronomy specialities (especially the famous fish soup) offering a unique tourism attraction.

Picture 26: The centre of Szeged with the Tisza River[44]

In Serbia, the first important city close to the Hungarian border is Subotica (Szabadka), which is around 25 kilometres far away from the Tisza River. In the middle of the city, the Hungarian Art Nouveau stylish city hall can be found, which is the symbol of Subotica. The area of the city hall is around 6000 m2, the tower of the building is 76 metres, but the viewpoint is located around 50 metres high, where the view of the city and its surrounding area is unforgettable. In Magyarkanizsa, in the middle of the park is operating the thermal water bath, which is popular destination for those who likes or who needs thermal water due to its beneficial effect. Near to Zenta the The Special Nature Reserve "Pastures of great bustard"45 can be found. The reserve is characterized by lowland steppe, salt marsh and wetland ecosystems, which is a perfect location for the remaining population of great bustards, which bird is on the IUCN red list, which this bird is strictly protected species. This area is a preserved typical Pannonian region with protected plant communities and habitat of strictly protected species. The dry mill in Kikinda[46] is the symbol of the municipality, special cultural heritage of Serbia. The building is unique because this is the only dry mill (more than 120 years old building) in the whole Carpathian Basin where the mill is still located on the original place with its original structure, which was built together with the house of millers. The city of Novi Sad is the second largest city of Serbia, the functional and economical centre of Vojvodine Region, the capital

[44] https://szallas.hu/programok/szegedi-dom-szeged-p4145
[45] http://www.velikadroplja.rs/en/rezervat-en/odlike-en
[46] https://malmokutja.hu/szarazmalom-nagykikinda/

itself has a historical old town with emotional pedestrian streets. In the middle of the old town the city hall and the neogothic catholic church. There is a castle in the city (which was an important fortress against the Turkish empire), where the clock of the castle is unique: the clock wises were changed (small clockwise shows the minutes, the bigger one is showing the hours) to increase its visibility from the Danube River. Near to Novi Becej the Special Nature Reserve Slano Kopovo[47] can be found: Slano Kopovo is one of the river Tisa ancient meanders, i.e. geomorphological form that river water created. This is a very specific area, it is characterized by special and rich plant cover, it is recognizable by special kind of salt marsh vegetation (only here, in Serbia, you can find free from leaves, salt marsh plant). Slano Kopovo is one of the most important and the most special bird habitat in Serbia, it is also functioning as a station for birds during the migration (e.g. 17 000 cranes in only one day). Besides the small size of the protected area, there are 220 bird species was recorded here.

Picture 27: City Hall of Subotica and Novi Sad, and the Slano Kopovo from bird's eye view[48]

4.4 Conclusions

The aim of this chapter was to introduce 3 regions, where the Amazon of Europe Bike Trail model can be transferred. To identify the potential regions, 3 main principles were taken into consideration:

[47] http://rncheritage.net/

[48] https://www.tourispo.com/sight/novi-sad.html https://st.depositphotos.com/1876851/1602/i/600/depositphotos_16028699-stock-photo-city-hall-in-subotica-serbia.jpg http://www.slanokopovo.com/hu/fizicke-karakteristike/

- The region is rich in nature related values (unique at international level), biosphere reserves or at least national parks or other protected areas can be found.
- The region itself has mainly rural characteristics – which means it has similar socio-economic background (decreasing population, deprived areas) as the Amazon of Europe area has.
- The region is located in cross-border areas – the cross-border and transnational aspect can be perceived in the area.

After the deeper analysation of the Danube Transnational Programme area, 3 regions were selected:

1. Sava River and its surrounding area, connecting 3 capitals
2. 4 countries and 3 transboundary biosphere reserves (Belarus, Poland, Ukraine, Slovakia)
3. Tisza River and its surrounding area

To know more about these regions, a short socio-economic analysis was elaborated (which was done for the Amazon of Europe Bike Trail territory as well) for each region. The socio-economic analysis contains information about the nature protected areas and its values, main demographical background and the main tourism related statistical data together with the most popular sights to visit.

Of course, we have to point out that additional and in-depth analysis would be needed in the respective regions. During the analysis the NUTS 3 regions are too big in territorial aspect, the local characteristic can not be visualized and introduced as it would be needed, it can distort the “real” situation.

For 2 regions, the river itself were the main factor, determined the regions which were analysed within the short socio-economic analysis, while in the case of the other region the 3 transboundary biosphere reserves determined the analysed area – where several bigger or smaller rivers, ponds and lakes, swamps and marshes can be found.

As a conclusion, the Sava and its surrounding area is the most like the Amazon of Europe Bike Trail territory, the biggest advantage of this area can be disadvantage as well: it is very close to the Mura-Drava-Danube 5-Country Biosphere Reserve. The infrastructural background is relatively developed, the “presentation” of the nature protected areas and its values is solved, there is already an effective institutional cooperation behind the region – especially in the field of nature protection. The main goal with this development model is to enhance the economic development in rural areas, with the sustainable and responsible valorisation of the nature protected values – this is important regarding this territory, because the negative trends of rural areas (high unemployment rate, sharply declining population) are hurting this region the most. The tourism entry points in transnational level and the basic “critical mass” of potential visitors are given thanks to the three capitals along the Sava River, in tourism marketing point of view the region has exceptional opportunities (*Cycle through 3 capitals along the Sava River…*). The question is, is there any justification for two essentially similar trails, where the distance between the trails is only 60-80 kilometres? Is this an advantage, and the two trails will be complementary with each other, or vice versa?

In contrast with the previous region, the cross-border area where the 3 transboundary biosphere reserves operate is much bigger in territorial aspect and the number of populations is also higher – which is strongly connected to the fact, that in Ukraine and Belarus the NUTS3 level is much larger than in those country which are part of the European Union. This is a very exciting area, a border region between the western and eastern culture and a natural corridor of the western and eastern biosphere as well (flora and fauna). Hundreds of ponds, meadows, wetlands, nature parks, significant cultural heritages can be found here, but still an "undiscovered" region in terms of international tourism. But absent of an in-depth analysis we don't know how this region can be discovered by bikes: how is the basic infrastructural background (the surface condition of the bike routes), what is the average level of tourism service providers (e.g., accommodations, average English, or German language knowledge), how is it possible to cross the rivers etc. This region is covering 4 countries, therefore the crossing the borders are always a challenging issue, especially because this is the border region of the EU and the Schengen area – and still not mentioned the actual complicated situation due to the COVID-19 pandemic, or the actual political/war conflict in Belarus or Ukraine. Probably in the future the development of the route plan would be the most complicated, to define where and how should assign the bike trail among the transboundary biosphere reserves – and it is strongly recommended to consider the topographical features of the regions (Eastern Carpathians). Additionally, it is also a question how can cooperate together the three respective biosphere reserves area and its management organizations. In this area, there is a good example of a long-distance bike trail which leads through sensitive nature protected areas – the Polish Green Velo. It would be needed to use its results and build upon them.

The Tisza River and its surrounding area is also having the same character as the Sava River has. The river itself determines the possible bike trail, where the infrastructural background is mostly given – the only question in this regard is the first third of the route proposal – from the confluence area of the White and Black Tisza, where the Tisza River starts to meandering until the Hungarian border. This is the same situation with the qualitative and quantitative background of the service providers. The eastern part of Hungary (which has a higher proportion of the total route) is getting more and more popular within cycle tourists, the infrastructural background is developing year by year. We believe the Hungarian development processes are a good example how to develop cycle infrastructure in sensitive nature protected areas without disturbing its flora, fauna, and its habitats.

It would be also interesting – especially in terms of the development model Amazon of Europe Bike Trail – to think about the involvement and valorisation of the already existing long cycle routes and to use its infrastructural background and its network of service providers. Most of the cases the long-distance bike trails are connecting sensitive nature protected areas. In this aspect the assignment of the route will be already solved, the only challenge would be to connect these routes with each other (if needed) and start to contract with the selected service providers. Of course, there would be a lot of things to do, for example to define the "story" of the trail and start intensively the marketing activities. The Green Velo route is a perfect example: it is a long-distance bike trail, connecting nature parks in Eastern Poland regions, the cycle infrastructure is given, the differences compared to the Amazon of Europe Bike Trail are that it is not a bookable product, and it has not got transnational aspect. In Ukraine, there are several European cycle tour operators, which are organizing regional cycle

packages (in Galicia or Roztocze), but due to the long distances, most of the cases bus trips are included in the packages (for example 40 km cycling, 200 km bus trip). Of course, more information is needed about its background is the bus service is needed due to the lack of cycle infrastructure, or it is needed to “visit as much sights as possible” within a one week long product. It would be also interesting to “use” well known cycle trails in Danube Transnational Programme area, which is already functioning as a long-distance bike trail – for example the Eurovelo 6 or Eurovelo 13. The Eurovelo 13 has the same itinerary as the former Iron Curtain had, which was an isolated area due to its function – to keep people away from the military line. This resulted a European Green Belt in the heart of Europe. In this case, already 3 principle is given:

- sensitive areas, nature protected areas along the trail
- the Iron Curtain Trail (Eurovelo 13) is already a functioning, long-distance bike trail product
- the trail has a basic network of service providers

But the assigned bike route (or part of the route) is not bookable yet.

5 Innovative ways of route digitalization

5.1 The digitalization work within the AoE Bike Trail project

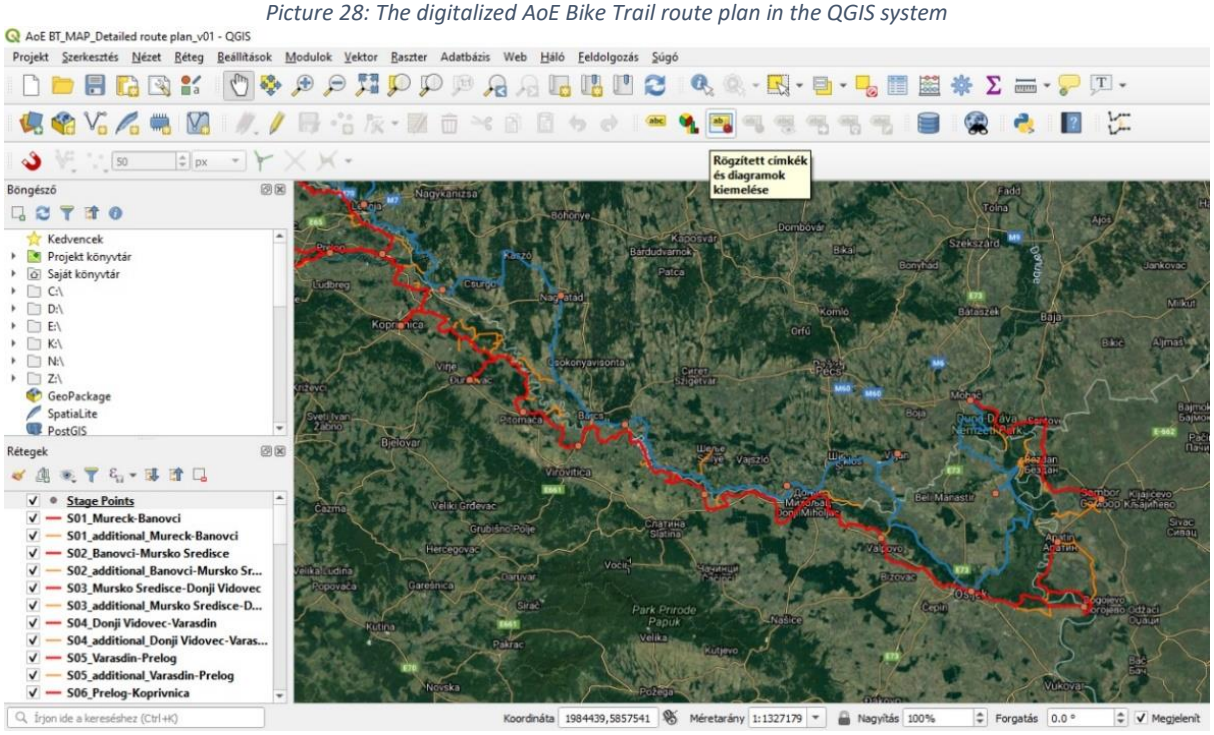
In the framework of the AoE Bike Trail project, WP5 work package leader Westpannon Nonprofit Ltd. had the role to digitalize the path of the bike trail. As a first step, the common standards regarding the route were developed within WP4 and WP5 led by the work package leaders and agreed among all regional coordinators. Then, the regional coordinators – according to the common standards – got the task to assign the path of the bike trail and send it to the work package leader for a quality check.

Generally, the digitalization of a route is not a difficult task, but in this specific case it was a real challenging task due to the very diverse inputs – provided by 11 regional coordinators (total 27 daily stages). During the route planning process, Westpannon received paper-based inputs, google map-based inputs (.kml files), and shape files (.shp) by GIS programmes. To collect every route related data was time consuming, and therefore the digitalization process was a bit lengthy.

After the collection of the inputs provided by the partners, Westpannon started to digitalize the route – identified the start and end points of the AoE Bike Trail and started to interlink them according to the feedback of the regional coordinators. During the digitalization, all the questionable stretches were recorded, and during the bilateral discussions between the regional coordinators and WP leader, all the questions were answered and clarified.

The digitalization was completed in the QGIS system by an external expert of the WP leader Westpannon. The route was digitalized stage by stage, which means the main route of a daily stage was only one layer, and one vector-based line, and the detours were digitalized as another layer (but with several lines). During the digitalization of the route track, specific attributes regarding the route (like its surface, or the type of road) were not recorded into the GIS system. On the map, the northern main route was coloured with blue, the southern was coloured with red, and in both cases the detours are marked by orange. Last, but not least, each start/end point were digitalized as a vector layer, which include points.

Picture 28: The digitalized AoE Bike Trail route plan in the QGIS system



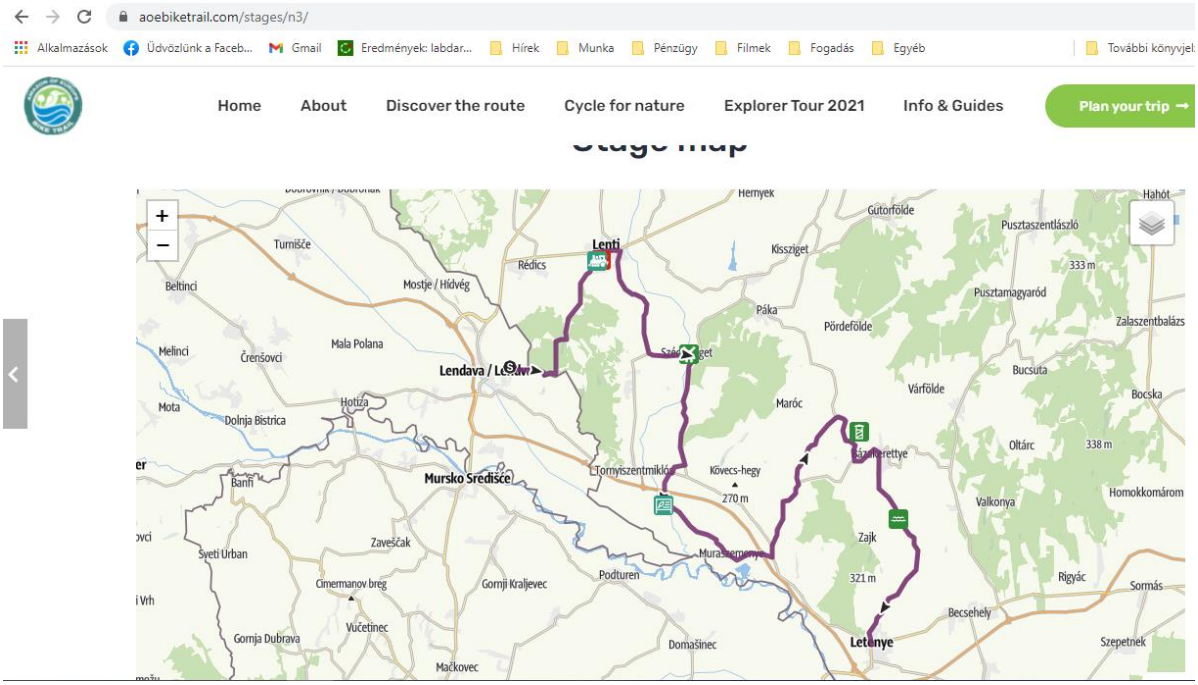
After the bilateral discussions and the finalization of the digitalization process, the work package leader sent the .shp files of each daily stage (and the whole trail) to all regional coordinators, but due to the limited GIS knowledge, Westpannon converted each file into .kmz (or .kml), which are compatible for Google Maps, as well. Of course, this step was crucial for each regional coordinator to check the digitalized track with their detailed route plan document.

During the progress of the project, the data set was completed with all the missing information regarding the location of resting places, the location of TOP6 experience spots, and the tourist information centres. These locations were also digitalized, and another external expert used this completed and digitalized AoE Bike Trail map during the design of the info boards – each regional coordinator received the map for the design of the infrastructure elements.

The other challenging part of the work was to send the already digitalized map to the lead partner, who integrated the map into the website of the touristic product (www.aoebiketrail.com). The online platform was developed together with the www.outdooractive.com system, and GIS background, where only the .gpx file can be uploaded. Therefore, as a first step, the digitalized map was converted from .shp files into .gpx files – but unfortunately (due to the basic operation and function of the outdooractive system) the detours (which take the tourists to the most relevant touristic spots) cannot be made visible. The reason of it is the operation of the outdooractive system, which can only give information about a start point (called A), an end point (called B), and the interlink of these points (which is one, clear line/track). In this aspect, the digitalized AoE Bike Trail map with all the detours cannot be visible in the homepage of the AoE Bike Trail product. Based on the discussion among the lead partner, the work package leader, and the representatives of the outdooractive platform, only the main route of the bike trail is visible at the website. The

additional promotional documents like brochures and touristic maps will contain all the information regarding the detours with the attractions.

Picture 29: The digitalized map in the www.aoebiketrail.com homepage supported by the outdooractive system



Of course, the final digitalized map of the AoE Bike trail will be done in the end phase of the project in line with the regional route implementation reports and their content (correction of the minor changes regarding the route). Westpannon will update the final map, which will be able to be used by the homepage of the product and for the final brochures, as well.

5.2 Best practices, smart solutions

As it has already been mentioned, the Amazon of Europe Bike Trail was digitalized by the QGIS software, which means the digitalization was done by an external expert. The disadvantage of this kind of digitalization is that it is not needed to be “on the field”, you can digitalize all the route on your own from the office.

Hereby, we would like to introduce 2 types of innovative digitalization, which already exist, and which need a real fieldwork, as well – of course this assessment and digitalization also depends on the expert who digitalizes the route; therefore, it is subjective. But, in several cases, to be on the field and digitalize the real situation and facts are essential. It is important to highlight that these tools / methodologies are not only for digitalization – they are also able to evaluate the route according to a set of standards.

The reason of this chapter is to introduce methodologies, which can help also evaluate the route itself. The evaluation is needed for recording the necessary data about the route and give a clear picture about the route infrastructure – which is also very important in several aspects:

- route maintenance

- route development
- comparison of different sections according to an already existing methodology

European Certification Standard

The European Certification Standard (ECS) is a set of rules developed by the European Cyclists' Federation (ECF) to certify EuroVelo routes and evaluate their quality. It can also be used to assess the quality of national or regional routes. It can help to set up national standards where they do not exist and harmonise the different regulations in the European states. Officially, the route evaluation can only be done by a certified route inspector, who learned all the details about the route evaluation and who participated in a 2-3-day long training where the necessary knowledge regarding the field work and real evaluation process was acquired.

There are 2 important steps regarding a route certification according to the ECS:

- **Survey** is the process of collecting and evaluating route data described in this manual. A
  survey is always required for the certification of EuroVelo routes, but it can also be used
  outside the EuroVelo network or at an early development stage to identify investment needs
- **Certification** is a confirmation that the route meets criteria set in the European Certification Standard. Only EuroVelo routes in their entirety or their major sections (at least 300 km long and with clearly defined origins and destinations, e.g., major cities or attractions) can be certified. The certification will remain valid for five years before it has to be renewed, but the main characteristics should be monitored regularly (yearly). After five years the complete route should be assessed again by using the same methodology (including survey). Of course, to fulfil all the criteria, the elaboration of a route evaluation report is needed including all the data collection.

It is important to be mentioned that during the field work is done by the certified route inspectors, they digitalize and evaluate the bike route, as well. And how can they make this happen? With a mobile app, which is necessary during the field work. During the testing of the route, the route inspector stops every 1 km recording all the data which he/she experienced during the cycling. Of course, there might be some data which can't be collected during the field work; therefore, the desk research-based data collection is also important. Within the methodology, the data collection process is separated into 2 bigger topics:

1. *Infrastructure*

Within this topic, most of the data are "hard data", which responds to the surface quality and the rideability of the route itself. Therefore, the route inspectors record the data regarding:

- continuity of the route (are there any physical or legal obstacles)
- route component (type of the road, direction, width of the road, volume of traffic, speed limit for motorised vehicles, dangerous crossings)
- surface of the route (what is the material of the route and what is its quality like)
- significant elevation differences

- attractions along the route (the landscape, cultural/natural attractions, nuisances)
- signing (special attention to the EuroVelo standards)
- Public transport connections (number of connections, reliability, bike carriage possibilities)

2. *Services and marketing*

Within this data set, most of the data can be collected by desk research, but of course the on-the-spot data recording can be useful, as well:

- accommodation (type of accommodations along the route, cyclists-friendly accommodations within 5 km)
- food, drink and resting areas
- bike services (bike repair facilities or shops, self-service stations, etc.)
- bookable offers
- web and printed communication (social media activities, brochures, etc.)
- Info-points along the route (info-boards, info-centres, etc.)
- additional promotional tools (T-shirts, branded gadgets, events, etc.)

To summarize, this methodology needs field work-based and desk research-based data collection as a basis, and during the field work, the digitalization work is done, as well as the route evaluation. With this process, the big advantage is that the data collection is quite diverse, and at the end it will have a huge database about the route, but on the other hand the data collection can be subjective, as well (feeling of riding a bike) – despite being certified route inspectors. Additionally, recording data in every km is a good basis, but sometimes it can be inaccurate – for example it is hard to identify exactly a location where a dangerous road-crossing exists.

CycleRAP

CycleRAP (Road Assessment Programme) is an easy and fast method of evaluating bicycling infrastructure, mainly in safety aspects. Developed by iRAP, CycleRAP is an evidence-based infrastructure risk evaluation model. It aims at reducing crashes and improving safety specifically for bicyclists and other light mobility users by identifying high risk locations without the need for crash data. CycleRAP will power software tools used for pinpointing and mapping where crashes are likely to occur and offer suggestions for measurements to reduce this risk.

CycleRAP is intended to:

- Improve bicycling-related asset management and maintenance planning
- Help prioritise investment and planning for bicycle and light mobility modes, and
- Provide safety key performance indicators and track performance over time.

The CycleRAP uses data to evaluate risk based on the infrastructure characteristics that increase or decrease risk for users. While its primary purpose is not to evaluate network connectivity, cycling comfort or perceived safety, the results and data collected can be used and analysed in conjunction with other data to help to improve the overall quality of their cycling networks.

The way of route digitalization and the collection of the primary data is very interesting and unique: the route inspector starts the digitalization with a 360° camera installed on a bike, with the ability to record the GPS position simultaneously. After the field work, the route inspector uploads the georeferenced videos into the online platform for road safety analysis, called ViDA, and the desk work can be started. The purpose of road attribute coding is to use georeferenced images collected during a survey or road designs to record road attributes for each 100m segment of road. This coding data is then combined with other supporting data and uploaded in ViDA to produce Star Ratings, Safer Roads Investment Plans and, ultimately promote the implementation of road safety countermeasures that can save lives. The field work of this methodology can be accelerated in case the cycle route runs on the road with car traffic, or on a separated, however, still visible track along the road, as the camera can be installed at the top of a car, and the video can be recorded from there.
More information on the technical background: https://irap.org/specifications/

5.3 New way of digitalization – extended content and new possibilities, recommendations

In this sub-chapter of the document the aim is to provide a guide, which will help to digitalize the assigned route in other destinations, where the digitalization and the basic evaluation are necessary – however, which is not needed for any certifications, but it is needed for comparison of the routes in different regions, and it is also needed in trail maintenance aspect. In this document we try to identify those data, which are really needed during the digitalization. The key data set has been chosen from the above mentioned 2 bike trail evaluation methodologies. Both methodologies are very complex systems, but of course in digitalization way there are some segments, which are not relevant for our document. The ECS is strongly focusing on the EuroVelo related infrastructure elements, and the services and marketing activities segment are also highlighted.

This set of data collection can be the standard set – this information (especially for a bike trail) is crucial to show the visitors/users (and the responsible stakeholders for trail maintenance) all the relevant information about the trail.

The basic data standards, which are relevant for a future trail as a touristic product – in infrastructure status and trail maintenance point of view:

Infrastructure related data (hard data):

1. type of road (bike lane, separated bike road, painted bike path, forestry road etc.)
2. surface quality, width (dirt road, stabilized gravel or asphalt, general width of the bike infrastructure)
3. Rideability, comfort (how comfortable to cycle on the surface: the rideability of the route is good, moderate, or bad)
4. safety aspects (traffic volume data if the path runs together with motorized traffic, speed limits on the assigned road, dangerous crossroads)
5. elevation
6. signs (already existing signs or new ones, which are important mainly in maintenance aspect)

7. obstacles (any objects, which make the route impassable – factors why we have to stop cycling (e.g., bridge, stairs, etc.)

Other data (soft data):

1. most important and relevant points of interests (like cultural/nature touristic attractions)
2. services (touristic service providers, cycle related services – e.g., bike services)
3. public transport connection (if relevant – main railway stations or bus stops, main transport hubs)

Digitalization can be done during the field work (with a mobile app, like the ECS methodology), or can be done after the video recording (CycleRAP) or can be done by the QGIS software (digitalize several layers according to the above-mentioned attributes). The point is to have a clear path of the route, and if possible, visualize the most important information about the route itself. The detailed digitalized maps will be very useful during the trail maintenance, and the trail development due to the updated and real-time based maps. Monitoring the number of signposts, identifying those sections/daily stages where infrastructural improvements or safety actions are needed can be done more accurately and faster if you have digitalized maps about the route containing the most important route-related data set.